Instructions:-

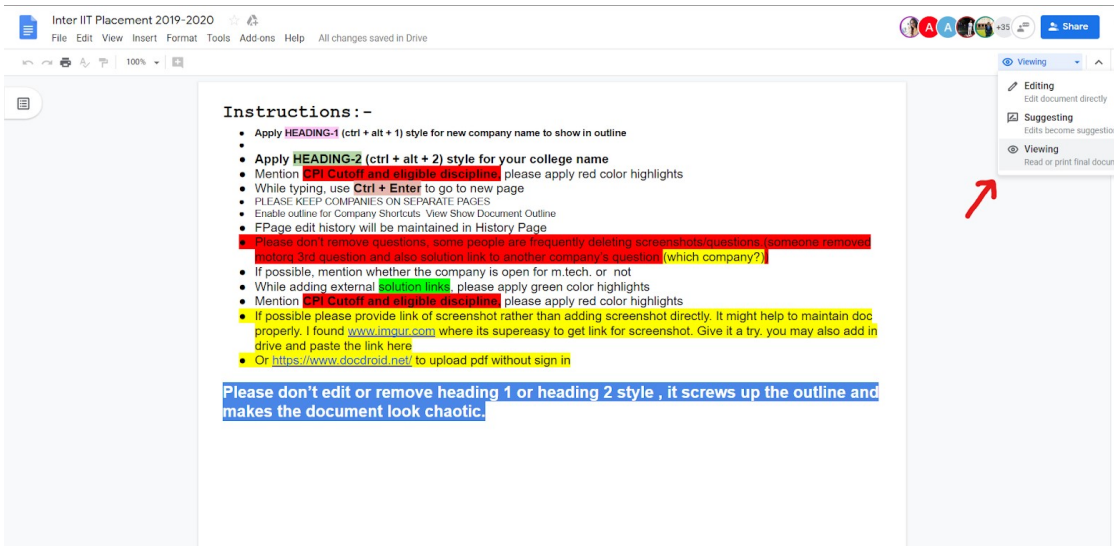
- **Apply HEADING-1 (ctrl + alt + 1) style for a new company name to in outline**
- **Apply HEADING-2 (ctrl + alt + 2) style for your college name**
- Mention **CPI Cutoff and eligible discipline,** please apply red color highlights
- While typing, use **Ctrl + Enter** to go to a new page
- PLEASE KEEP COMPANIES ON SEPARATE PAGES
- Enable an outline for Companiod also solution link to another company's question (which company?))
- If possible, mention whether the company is open for m.tech. or not
- While adding external solution links, please apply green color highlights
- Mention **CPI Cutoff and eligible discipline,** please apply red color highlights
- If possible please provide the link of screenshot rather than adding screenshot directly. It might help to maintain doc properly. I found www.imgur.com where its super easy to get the link for screenshot. Give it a try. you may also add in drive and paste the link here
- Or https://www.docdroid.net/ to upload pdf without sign in

Please don't edit or remove heading 1 or heading 2 styles, it screws up the outline and makes the document look chaotic.

If you're using this doc for viewing please consider changing your editing mode; it will make the experience smoother for you too.

USE view only link:

http://bit.ly/2LZHSp5



Company List

You can search the questions of the companies.

KINDLY ENTER COMPANY HERE, ONLY IF ANY INFO IS ADDED IN DOC

Those who are creating link, Insert -> bookmark in front of the company name where questions are added, then add link of bookmark. For eg see microsoft link

Flow traders	Itron	Nference Labs	WorldQuant	Samsung Bangalore	AppDynamics
Cohesity	Samsung Delhi	Arista Networks	Cargill	Edgeverve	Hexagon
Clumio Technologies	Deskera	Wells Fargo	BookMyShow	Zendrive	ShareChat
Citrix	Honeywell	Walmart Labs	Motorq	Cogoport	NetApp
Sprinklr	Axis Bank	Juniper	Publicis Sapient	Zauba Technbaologies	ExaWizards
HSBC	Samsung Semiconductor	Standard Chartered	Silverleaf Capital Services PVT LTD	AQR Capital	Samsung R&D Noida
Adobe	Zomato	Alphonso	Jaguar Land Rover	Publicis Sapient (Data Science Profile)	JPMC SDE
Visa	Oracle	Cure.fit	Societe Generale	Morgan Stanley	Plutus Research capital
ServiceNow	Codenation	JioSaavn	Mathworks	PhonePe	Squarepoint Capital
Trell	Bounce	Intel	Accenture Japan	OLA(S DE & RE)	Harness
APT Portfolio	Uber	Trexquant	Razor Pay	Enphase Energy	Oppo
Dunzo	Sandvine	Bidgely	Zilingo	Confluent	Delhivery
IrageCapital	Salesforce	Bizongo	BNY MELLON	Alphagrep	SAP Labs
GE	OPTIVER	JPMC QUANT	American Express	Google	Atlassian
Netskope	Cloudera	Work Applications	MasterCard	Open Futures	ZestMoney
Flipkart	IBM IRL	Siemens Healthineers	Toppr	Paypal	Fractal
VMWare	Myntra	synopsys	Udaan.com	ClearTax	SOU Japan
Dream11	Veritas	Ericsson	Honda Japan		

When Editing link select company name in the table and press **ctrl+K** then select **bookmark** and not heading

History of Companies

Date	**Company + College**
16/8/2019	(Microsoft, Amazon, Nutanix, ThoughtSpot)
21/8/2019	Goldman Sachs, Cisco
24/8/2019	Flow traders (IITG)
14/9/2019	Itron (IITM)
17/9/2019	Nference Labs(IITM) WorldQuant (IITD)
18/9/2019	Samsung R&D Bangalore (IITD)
20/9/2019	Cohesity, technical staff member (IITD)
21/09/2019	Zauba (IITM)
22/9/2019	Samsung Delhi (IITD)
23/9/2019	Arista Networks (IIT Jammu)
24/9/2019	Oyo Rooms (IIT Jammu)
26/9/2019	Directi(IIT Gn)
29/9/2019	EdgeVerve (IIT BHU)

	(IIT M), Deskera, Software developer(IITK)
04/10/2019	BookMyShow(IITH)Honeywell(IITK)
05/10/2019	Honeywell (IITH) Zendrive (IITG) CITRIX (IITG) ShareChat (IITK)Razorpay(IITK)
06/10/2019	Walmart Labs (IITG) AQR Capital (IITG) Motorq (IITM)
07/10/2019	Cogoport(IITK) Samsung R&D Bangalore (IITG) NetApp(IITG) Samsung Delhi (IITK)
09/10/2019	Sapient (IITH), HSBC(IITH), Cisco(IITK), Directl(IITG), Sprinklr (IITG), Axis Bank(IITG), Juniper(IITK)
10/10/2019	Amazon(IITG), Zauba(IITG), Exawizards(IITK), HSBC(IITG), Samsung Semiconductor(IITK) Samsung Noida(IITBHU), Standard Chartered(IITR), Samsung Noida(IITG), Silverleaf(IITK) (IITD)
11/10/2019	Cogoport(IITH), Bizongo(IIT BHU), Zomato(IITG),Adobe(IITG), Samsung Research Bangalore(IITR), AppDynamics (IITK), Jaguar Land Rover (IITD)
12/10/2019	Zauba Cloud(IIT BHU), Alphonso(IITG), Alphonso(IITD), Alphonso(IITK) , Publicis Sapient Data Science (IITG), Publicis Sapient SDE (IITG), JPMC SDE (IITG), Cogoport(IITR), Sprinklr (IITD)
13/10/2019	Jaguar Land Rover (IITR), Visa(IITG), Oracle(IITG), Citrix(IIT BHU) Societe Generale(IITG)
14/10/2019	Walmart Labs(IIT- Dhanbad), SRI Delhi(IITG) Cure.fit(IITR), Wells Fargo(IITR), Standard Chartered(IITBHU),Exawizards(IITH), Plutus Research Capital (IITD)
15/10/2019	ServiceNow (IITG), Appdynamics(IITR), JioSaavn(IITR), Nutanix(IITD), Jaguar Land Rover(IITK), Publicis Sapient Data Science (IIT BHU)
16/10/2019	Mathworks(IITKGP), Citrix(IITR),
17/10/2019	ServiceNow (IITBHU), Jaguar Land Rover (IITG), Cure.fit(IITD), PhonePe(IITR), Mathworks (IITK)
18/10/2019	Walmart Labs (IITBHU), Squarepoint Capital(IITG)
19/10/2019	Zomato(IIT BHU), Amazon(IITD), Deskera(IITD), AQR(IITH),Trell(IITK), Publicis Sapient Data Science (IITR), Publicis Sapient SDE (IITR)
20/10/2019	Bounce(IIT BHU), Jaguar Landrover(IIT BHU), Intel(IIT KGP), JPMC(IITR)
21/10/2019	Policy Bazaar (IIT BHU), Amazon(IIT(ISM) Dhanbad), Zomato(IITR), Accenture Japan(IITR). Oracle(IITH)
22/10/19	Clumio(IITG),OLA(SDE & RE Profile,IITD), Harness(IITD), Societe Generale (IIT BHU), Standard Chartered (IIT BHU), Sprinklr(IITR), SquarePoint(IITR), Uber(IITD)
23/10/19	Adobe(IITKgp) Zendrive(IITD) Cohesity(IITR) OLA(SDE & RE, IITR) Harness(IITG)
24/10/19	Enphase Energy(IITG), Amazon(IIT KGP), Cure.fit(IITG)
25/10/19	Accenture Japan(IITD) Honeywell(Mech and Engineer profile), Harness (IITK) , Wells Fargo (IITK), JPMC Software(IIT KGP)
26/10/19	Uber (IITG) Mathworks(IITG) Cogoport(IITG) Confluent(IITG) Delhivery(IITG) BNYMellon(IITH), Accenture Japan(IITK)
27/10/19	IrageCapital (IITG)
28/10/19	Adobe(IITBHU) Honeywell (IITKGP) Adobe(IITH)
29/10/19	salesforce (IIT(ISM)Dhanbad) ,Amazon(IITH), Publicis Sapient(DS & SDE) (IITKGP) , Salesforce (IITK), OLA(IITK)
30/10/19	SAP Labs (IITD) SAP Labs(IITG), Optiver(IIT-B)
31/10/19	Zomato(IIT ISM Dhanbad), Nutanix(IITKgp), HSBC(IITR), GE(IITG), Nutanix(IITG), Sprinklr(IIT-B)
1/11/19	Goldman Sachs(IITR) (IITD)(IITG)(IITKGP)(IITH)(IIT ISM)(IITK)(IIT BHU)
2/11/19	SAP Labs(IITK),jpmc QUANT(IITKGP) ,GE(IITKGP),WALMART(IITKGP),MERCARI JAPAN(IITKGP),jpmc QUANT(IITR), NUTANIX(IITBHU), NUTANIX(IITR), NUTANIX(IITB), jpmc Quant(IITG), GE(IITH), Redpine signals(IITH), Denso(iith)
3/11/19	Societe Generale(IITR), JPMC SDE(Retest)(IITR),JPMC(IITD), Amazon(IITR), Google(IITR, IITK,IITG), American Express (IITD), JPMC SDE(IIT BHU), commVault(IITG), Qualcomm(IITH), Intel(IITH),mdia.net(IITH), Saavn(IITB)
4/11/19	Atlassian(IITR), Netskope(IITBHU)
5/11/2019	Morgan Stanley(IIT ISM) Saavn(IITK) Work Applications(IITK), Mastercard(IITBHU), Zendrive(IITR)
6/11/2019	Siemens Healthineers(IIT BHU), Cisco (IITBHU), Ola (IITBHU), Phonepe(IITG), Zilingo(DA, IITR)

9/11/2019	ExaWizards(IITR), Commvault(IITR), Salesforce(IITR), BNY Mellon(IITR, IITG), Paypal(IITR), NetApp(IITBHU),Paypal(IITM),Cisco (IITG),Intel(IITG), ZestMoney(IIT BHU) IrageCapitals (IIT BHU), VMWare(IITK)
10/11/2019	Toppr (IITG)
11/11/2019	VMware(IITG,IITK), Myntra(IIT BHU)
12/11/2019	Microsoft(IITH) synopsys(IITG)
13/11/2019	Sprinklr(IITBHU) Udaan.com(IITG)
14/11/2019	Flipkart(IITBHU), Microsoft SDE (IITBHU), Mastercard(IIT KGP), Apple(IIT KGP), OLA APM (IIT KGP)
15/11/2019	VMWare(IITBHU), ClearTax(IITG), SOU Japan(IITKGP)
16/11/2019	Morgan Stanley(IITG) Siemens Healthineers(IITG) Harness(IIT BHU)
17/11/2019	AppDynamics(IITG) Veritas(IITG)
18/11/2019	Dream11(IIT BHU) Ericsson(IITG)
19/11/2019	Swiggy(IIT BHU)
	KINDLY ENTER COMPANY HERE, ONLY IF THE QUES ARE ADDED IN DOC **Please mention college name too**

Queries Section

PLEASE SOMEONE ADD PAYTM QUESTIONS IIT-G GUYS PLZ ADD

IITH guys please add Salesforce Questions, IITD guys, add salesforce ques asap.

Did Salesforce visit any IIT? If not what are the tentative dates? iitr 9th nov - IITH 4th November yes in IIT (ISM)

NOTE : WHOEVER UPLOADS ZIP FILES FROM **IITD** THEY ALL ARE CORRUPTED. PLEASE SHARE SCREEN SHOTS(BY INSERTING IMAGE IN THIS DOC) ORf DESCRIBE THEM IN TEXT. Convert .rar to .zip online, then unzip

!!!PLEASE ALSO MENTION YOUR COLLEGE NAME ALONG WITH THE QUESTION SET. @NIT guys!!!!! (IIT guys have written their college name)

Please tell the placement scenario in your campus? The count of companies at IITK is quite low compared to last year.

Please add Razorpay questions !! ((IITK guys) - you have added it in the calendar, but not added the questions

What is the CTC Breakup of Policy Bazar ?

NIT Warangal guys please add Microsoft, Uber, Salesforce questions, if your friends are there from NITs ask them to post the questions. Placements are completed in all NITs

IIT KGP guys, please add Amazon questions

Guys, Please add more Microsoft questions.

Did JP Morgan Chase visit any college? SDE test tomorrow (12/10/19) in IITG

Did Morgan Stanley visit any college ?SDE test tomorrow (12/10/19) in IIT BHU

Are the results for Flipkart APM challenge out? When will they be? **+1 YES in IITR**

Someone, please add Amazon MCQs

IIIT Allahabad guys, add Swiggy questions please.

Has Jaguar Land Rover visited any campus for Software and Core Mechanical Profiles? Please add questions.**+1** (test date: 23/10, IIT KGP)
- Visited IITH for software, elec core and mech core. All had a common Coding round and elec and mech guys had an extra technical round of MCQs.

Did Swiggy visit any campus ? It will visit IIIT Allahabad. IIIT Allahabad guys, please upload swiggy questions as there no swiggy questions in this doc and also in the previous year's doc.

Has Sprinklr India visited any college ? Please add questions. +1 test tomorrow (9/10/19) in IITG added

Did Jio visit any college ? If yes, please add the questions. +1 +1

Please add Oracle, Salesforce, Softbank coding questions.

NIT Warangal guys please add Microsoft, Uber, Salesforce questions

IIIT Delhi guys post Qualcomm Questions

BITS PILANI guys please add Microsoft Questions

IIIT Bangalore guys please add Cisco questions

Please add Future First questions guys +1+1+1+1

Please add L&T ECC questions and of TATA as well.

NIT Warangal guys please add MakeMyTrip Questions

NIT Surathkal add Walmart questions too

Please add Citibank (Technical Programmer Analyst) profile Online Test questions.

Has Worldquant visited any college? Added.

NITians please add Salesforce questions.

Has Flipkart shared it APM ppt challenge in any college? yes in IITG, IITBHU, IITR, IITK, IITB, IITM, IITKGP

What is the CPI cutoff for Worldquant? 8.5(IITM)

Has Flipkart visited any college? IITK, IITG, IITB, IIT BHU, IITR,IITKGP everywhere with APM profile - visited iit bhu

MNIT guys please add OYO Rooms Business Analyst questions ? (*What is BA ??)
What is the CPI cutoff Samsung R&D Delhi? - 7.0

Upload Honeywell questions if they came anywhere yet.
1. job sequencing problem 2. leetcode 741 cherry pickup 3. Is this a tree?. IIT-H IIT-K

Has dwell visited any college?

Any information about dunzo test? They asked 3 coding question in IITK in one hour

What were the sections in the test of Goldman Sachs?

What is CPI cutoff for FlowTraders? And, also can someone describe test+interview process followed by FlowTraders? test patterns,etc 1st round questions are in the doc, 2nd round is easy fast math (75 questions in 10 mins) {min 60% cutoff}, 3rd round is IQ round (venn diagram,LR, etc) (68 questions in 30 minutes)

Please add Atlassian Questions.+1+1

Has Publicis Sapient visited any college? If yes, please add the questions. Yes, it has visited NIT Warangal. But those guys don't post the questions. If anyone has a friend from NIT Warangal ask them
Inversions in an array

Has fractal Analytics visited any campus yet? Yes, IITG PPT tomorrow - Questions please!

Did cohesity opened for M.tech in IIT Delhi and what were the branches it was open for? **No, only for dual degree and BTech**

Did Visa come any place and opened for M.Tech? Earlier didn't open for mtech but opened on 12/10/19 for CS, in IITK. It is open for Mtech students in IITG

Someone please add the questions asked by **VMware(2018)**.

Please add Microsoft questions. There are only 3 questions till now!

Has Accenture(JPN) visited any campus till now? Please add question asap. questions please +1 count set bits in a number, ugly number question

Has Cure Fit visited any campus? Please add questions Questions please! @IITG one easy greedy

question, second also easy graph question could

be solved easily by doing a modified bfs Which profile??? Can anyone tell the specific questions!

Has Dynamic Technology Lab visited any campus? Shortlisted only 6 for test in IITK in one profile and 7 in another..so very hard and tough shortlisting process even for giving the test

Please add Questions of HSBC. IIT H?? Screening Test Question same as given on Link.

If Mercedes Benz, Qualcomm visited any IIT plz add the questions

If MATHWORKS visited any IIT plz add the questions MATHWORKS has visited IIT kgp/ questions added, probably they are going to ask from the previous years only as most of the questions and pattern were repeated

IITK AND IITKGP Guys do Mathworks coding question were same for all core electrical and CS ..?
YEAH mostly similar

Has Meesho visited any campus for SDE? please add questions if visited.

Has Flipkart released its dates for APM case study or released the names of selected students after APM deck? Declared in IITKGP IITK IITG

If UIDAI and GSTN visited any campus, pls add questions. Only MCQs were asked related to Reasoning and CS concepts

IIT MADRAS guys update CodeNation question if they visited. Not yet

Has Oracle visited any other campus other than IITG? IITD IITH IIT BHU

Eligibility of Plutus Research Capital and cpi cutoff? CSE (B.Tech) EE(B.Tech and Dual Degree); no cpi cutoff

Why was Accenture Japan test got cancelled, IITG guys?? server issue from accenture side

Did Trexquant visit any college ?? Yes IITK ---Please add questions dont remember the 3 coding questions exactly but can be easily done using Python. one question especially asks to do in python. All rest MCQ's were of same kind where one headline/situation was given and was asked whether the stock price of the company affected as per the headline will go up or down

Is Python Allowed for Microsoft Online Test?YES

HAS PHONEPE VISITED ANY CAMPUS YET? URGENT ASAP? Yes, IITR. When will Phonepe visit your college ?

Is INDEED visiting any campus this year? If not visiting then write "No" Not IITD as of now, "No" IITBHU,

PLEASE ADD ENPHASE ENERGY QUESTIONS IITK ELECTRICAL GUYS

Please add Oracle company screenshots +1+1+1+1

Please add Trexquant questions +3
Trexquant test CGPA cutoff? IITK, IIT Delhi.?
Did Goldman Sachs visit any IIT? If not what are the tentative dates?+1 Will be visiting IIT-BHU, IIT-R, IIT KGP,IIT ISM & IITB, IITG on Nov1;What time is the test scheduled for?Time is around 5:30 pm.
Did Salesforce visit any IIT? If not what are the tentative dates? in iitr 9th nov

IITKgp guys please add Intel Questions.
IIT G Guys please add SocGen MCQ Screenshots.+1

Has Sprinklr asked MCQ related to OS / DBMS / Networks in any college? Not in IITK(asked three coding q) Not in IITR also

has SAP labs visited any college? please add questions ?? +3+1+1

Plesase add Atlassian company questions…

Did Salesforce visit any IIT? If not what are the tentative dates? IITK : Test and ppt on 29th october

Pls add eligibility under companies- MUST

Has Zilingo visited any campus? Pls add questions.

Is JPMC (SDE) going to visit in some college . URGENT….. +1 Yes, In IITK . Thanks a lot. Can you please tell the date too. IIT(BHU) 3/11

Has Apple registered in any college? Is Apple coming for placements this year?? yes in IIT BHU + KGP

Did NXP Semiconductors visit any college ?

IIT KGP and IITK Guys were the MCQ's in MATHWORKS Test same for everyone or were they also have different sets? different for everyone

Any idea what is asked in Barclays test?+ 1+160 minutes 60 questions - 15 of them from finance, 15 code outputs, rest quant. 2 easy coding questions in 30 minutes (brute force works here)

IIT Hyderabad guys please add Amazon questions it was same from the pool given, some extra out of pool questions were also there.

IITK and IITR guys please add CISCO screenshots…..
Has Google visited any Campus? Scheduled on 3/11 in IIT BHU

Did GE visit any campus for software developer profile? IIT G IITH

Please add Quadeye questions… IITD guys 15 questions, 30 minutes for quant. 30 minutes CS mcqs (based on C/C++ code outputs, networks and OS), 3 coding questions to be done in 30 minutes. Cannot switch between sections. Some quant questions : range in which i^i lies, one series question, number of ways to make a garland given some conditions. One coding question was to find the matrix of all 1s.

Is JPMC (SDE) going to visit in some college . URGENT….. +1 Yes, In IITK .

(but test was not good at all, it had 2 coding problems and both had some wrong testcases)Are they gonna keep a retest? Nopes, they said they will check the code.**@IITD guys when is the Salesforce retest planned for you? 10/11.**they visited iit kgp.
IIT Mandi people please add Work application questions
Has Rubrik registered in any college? Is Rubrik coming for placements this year?
No, they have stopped Hiring Freshers, they will only take lateral hires. (ex-Intern)

Has Tower registered in any college? Is Tower coming for placements this year?
Most Probably not the company is in loss.

Has Udaan visited any IIT ?If visited, pls update question … 8 ko aayegi roorkee, Kgp me 7 ko https://imgur.com/a/N4ldb8e guys please share the code!

IITG Guys please update thoughtspot questions.

Has Gartner visited any IIT or is scheduled? Yes, IITD(9/11/2019)

Any Screenshots available what is asked in Barclays, if available pls share ?

Is MTX coming to any institute?IITD

Please add Groww SDE questions if visited any campus

EXL test done in which IITS ? platform?

Did OYO visit any IIT?

Oyo Rooms

IIT Jammu

Question 1

Max Rectangle in Binary Matrix: https://www.interviewbit.com/problems/max-rectangle-in-binary-matrix/
----------******----------

IIT KGP guys please add Apple questions

IIT M guys, What was the duration of MotorQ coding exam ?

Has DE SHAW visited any campus? and any idea whether its going to come to IIT's this year?

Is codenation going to hire this year? It has visited only Guhwahti i guess. Came to IIT R as well

Guys please add Apple Question

Has Go-jek visited any campus, if yes please add questions

Add Work application coding Questions

MICROSOFT

Only 3 questions from Microsoft. It visits almost all colleges, come on guys add more questions.
Please ask your friends to add questions if it has visited their college
In non-IITs, it asked different questions in each college. In all IITs, it asked the same three problems.

PLEASE ADD DATA SCIENCE QUESTIONS +5+1

SDE Profie

1. **War Ships**
Queue Based Question. Just queue and dequeue the elements and compute a function when the given condition reaches.

2. **Minimum Swapper**
Distorted Palindrome, minimum adjacent swap required to make a string palindrome.
(solution https://ide.geeksforgeeks.org/oDoMdULm54 someone verify it) Yes, it's correct.

3. **Pizza Delivery**
Find the minimum distance between a given 2D point and a set of 2D pos (had to round it off). Brute was passing? or nlogn was expected?Brute Force (N*N) was passing. The main task was the round-off

See below for accepted solutions (IIT BHU)

IITD PLEASE ADD DATA SCIENCE QUESTIONS +5+1

SDE Profile: Conducted on mettl platform. 1.5 hrs for 3 coding questions.
Is STL allowed on mettl platform? Yes
Python allowed?
1. Same ad-hoc question as above. Queue approach passed all the test cases.
2. Same as above.
3. Same as above except for maximum instead of minimum. Brute force approach passed all the test cases. Can you please elaborate 3rd question with an example?
Link to the questions: https://imgur.com/a/DmOhAy4
Some asshole messed up the link please dont so this this shit again… have to search from history https://imgur.com/a/DmOhAy4
(Both the codes in the images were accepted)(BC mat hatao yar test hai aj!)

DS Profile: Conducted on mettl platform.
1. 62 MCQs in 60 minutes. No negative marking. Questions based on concepts in classical ML, recommender systems, NLP, etc. Were there Qns on Probabilistic graphical models?
Any sample questions?+2
Did MS visit for DS profile before?+1YES

IITG PLEASE ADD DATA SCIENCE QUESTIONS +5+1

Same questions for SDE

SDE Profile
Please do consider these points
- For the palindrome question take care of the indexes and swap in both directions and do the swapping which take
lesser number of swaps among two
eg. madma -> madam or madma -> amdma both Can you please post the code for Palindrome question O(n2) working?See below for accepted solutions (IIT BHU)

Codechef question does not ask for minimum swaps so it accepts WA for some test cases also
- For the ship question try not to use two queues .I got TLE in some test cases and after implementing it using one i got AC
- In the third question do take care of round off part - O(n2) working ? //Can someone please confirm

IITKGP

Same questions for SDE

IIT-R

Same questions for SDE

Same questions for SDE

//Can someone from IIT-H verify whether O(n2) was working or not for the pizza delivery question?? Yes
See below for accepted solutions (IIT BHU)

IITK

Same questions for SDE
DS Profile: Question on Probability distribution, Recommendation Engine, Trees, ensemble, bias-variance, neural network,
Linear Algebra, Optimization, Kernel-Based, NLP basics etc

IIT BHU

Same questions for SDE

SDE Profile

Microsoft conducted Test on Mettl | 90 m | 3 Coding Problems

All three problems same as above-mentioned.

Solutions to the three: Imgur - Microsoft ALL IIT Codes

Amazon

1. String Parsing Question. (URLiffy)
2. Infix to Postfix
3. Postfix Evaluate
4. Alien Dictionary
5. Sort numbers when rank of each number in decimal system is changed.(Could anyone please elaborate the question or give some link
of this question on some website) as per my understanding when each number is mapped to another number for eg. 1 has rank
4, 2 has 9, etc and then you have to sort the modified number system.
6. Inversions in array.
7. Longest Common Subsequence.
8. Longest increasing Subsequence What order solution passed +1 Same Doubt
9. https://www.geeksforgeeks.org/dice-throw-dp-30/
10. Longest decreasing subsequence.
11. MEAN, MEDIAN, MODE OF AN ARRAY .
12 You are given a String S made of lowercase English Alphabets. Find the length of smallest substring with maximum number of distinct characters.
1<= |S| <= 10^5, where |S| denotes the length of the String.
https://www.geeksforgeeks.org/length-smallest-sub-string-consisting-maximum-distinct-characters/

13. https://www.geeksforgeeks.org/count-possible-decodings-given-digit-sequence/
14. Replace every element with the smallest element on the right side
15 Right, Left, Top, Bottom view of the tree.
please mention the platform ?

****Can anyone know what was “Walls” problem last year in IIT Delhi? Please write if anyone knows.

IITG

2 coding question from the pool of questions. (90 mins total for both section) Were all these questions given and we had to select and do any two? You get two questions from the pool
28 mcq - all of them focused on selecting the correct output of a C/C++ program out of 4 options

Coding:(Platform mettl) Do add using namespace std if you want to print something in console.

- Dice Throw: https://www.geeksforgeeks.org/dice-throw-dp-30/
- Longest palindromic subsequence: Please don't erase the questions
- Number of inversion in a array: https://www.geeksforgeeks.org/counting-inversions/
- Count Derangements: https://www.geeksforgeeks.org/count-derangements-permutation-such-that-no-element-appears-in-its-original-position/
- Evaluate Postfix : https://www.geeksforgeeks.org/stack-set-4-evaluation-postfix-expression/ Was it single digit version or multidigit version with space as given on the gfg. It has two version ?
- Same question as in the link: https://codeforces.com/problemset/problem/245/B
- Nth number of a GP: Return answer upto 3 decimal places
- Largest sum contiguous array: https://www.geeksforgeeks.org/largest-sum-contiguous-subarray/
- Mean, Mode, Median: https://www.geeksforgeeks.org/program-for-mean-and-median-of-an-unsorted-array/
- Euler's Totient Function: https://www.geeksforgeeks.org/eulers-totient-function/
- Given a, b and c coefficients of a quadratic equation, find the roots of the equation(assume

IITD

2 coding question from the pool of questions. The pool questions were same as mentioned above.
28 MCQ mainly asking output of C/C++ program. (Tip - Use the IDE provided for coding to get the output of asked MCQ question, if you change the language from any other to C/C++, the whole code for that coding question will be lost.).

Sharing my experience:
1. Even though #include <bits/stdc++.h> was getting added, using **map** or **unordered_map** was giving error. So, my advice is not to use it. Also, you need to add **using namespace std;** yourselves.
2. Mettl platform is not good as hacker rank so be prepared for environment issues if they occur and don't lose calm. Was it fullscreen mode? Yes, If you try to switch windows it shows warning.
3. Amazon_IITD_19 (Don't delete this link)
4. Check apples question from the link as its not there in above pool. Apple question is not clear in the above link. can anyone give some test cases or explain? As per my understanding we can take out the mean of the apples takes O(n) and then for the baskets that has apples more than the mean (only they are to be moved in baskets with apples less than mean) you can count the sum of extra apples. e.g A = {1,2,4,6,7} mean is 4 apples so the basket of our interest is 4th and 5th and apples to be moved are (6-4)+(7-4) = 5 apples (Desired Answer) Someone correct me if I am wrong. Correct Approach.
5. For mean, median and mode question, my nlogn approach (along with a few friends who got the same question) to find the median did not get accepted. It may be the case I made some serious blunder, hence request someone from IITD to acknowledge this question if your test cases passed for this question and also to share the code. Can we do it using multiset takes O(n) ? Was there a space complexity issue? I sorted the array (nlogn) and found mean, median and mode, 1 test case gave TLE, rest all passed (Python).How did you sort the array, is including algorithms allowed (** Same , i'm pretty sure my solution is correct (only default case passed). What can we do now?**) Were you getting TLE ?

Please see this link for O(N) solution to find median. https://www.geeksforgeeks.org/kth-smallestlargest-element-unsorted-array-set-2-expected-linear-time/
I think it could be solved in O(n) using median = mean - ((mean - mode)/3) formula, which is relation between them. Mode can be calculated in O(n) using hashing.Correct, if I am wrong? It's not always true. It works only when the data is normally distributed. Consider the case when arr={1,1,2,2,2} and calculate the mean, median and mode by yourself and check
Can i use #inlcude<algorithms> to sort.

IIT(ISM) DHANBAD

Questions from the same pool. Same pattern as above. Almost all MCQ's from IITD link.
Same set of coding questions and mcqs as above, no difference. Mode median question can be done in O(nlogn). See how to convert string to char array dynamically from gfg, bcoz every string function you have to return dynamically in char array form only. so practice it. Mettl platform is not good as other. Some STL were not working. map /unordered_map were working fine.

IITKGP(24/10)

Same pattern.
28 MCQs. (90% same as IITDelhi link) You can get output of MCQs by running them on code IDE.
2 coding questions from pool of questions mentioned above.
STL is question dependent. May work in some and not in others.
Do add using namespace std; for sure
Inversions in array passes brute force O(n^2)
Median passes sorting approach O(nlogn) No need of O(n)
IDE not good.
Ladder question also appeared to some which is asked in last year. same as
https://www.interviewbit.com/problems/min-jumps-array/
https://www.geeksforgeeks.org/minimum-number-of-jumps-to-reach-end-of-a-given-array/
Almost Everyone

IIT KANPUR

MCQs were mostly similar as above. Coding questions were also similar but some questions were different than the ones given in the pool. Some of those questions are -

1. Sort a string based on frequency of character.(Just needed to modify compare function for sort)
2. Next Permutation. ('123' → '132') https://www.geeksforgeeks.org/find-next-greater-number-set-digits/ (next_permutation(S.begin(),S.end())) was working so this becomes easy but question was not clearly explained.
3. Infix evaluation.
4. A question related to divisibility by 11.
5. Determine minimum difference in an unsorted array. (-10,0,11) -> 10 | (-4,2,18,5,-6) -> 2
6. Other people please add the questions that you got.

Mathworks

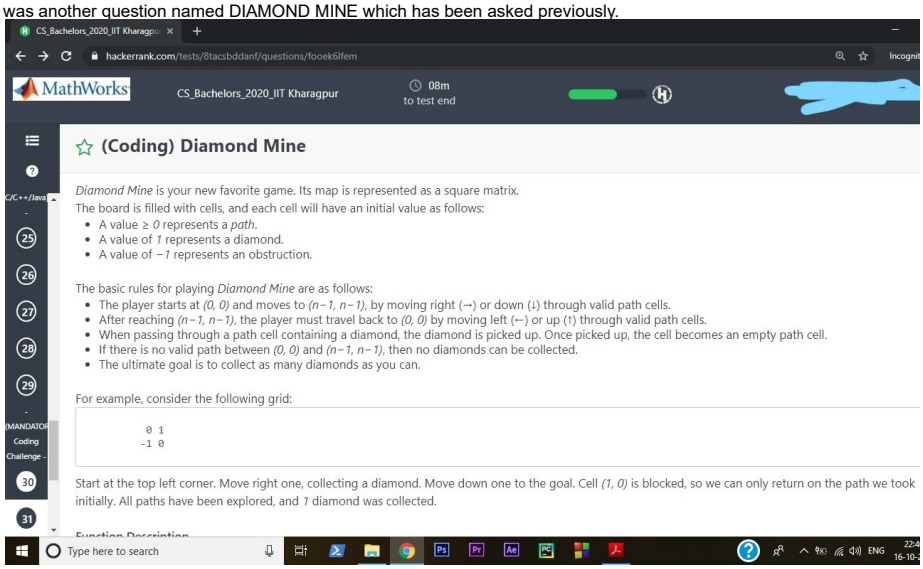
IIT KGP(16/10)

- open for almost all
- 2 questions from a pool of questions. Mostly repeat from previous year.
- total 37 question including 2 coding questions. there are many sets of questions. I don't know all.
- one part from mixing of OS, DBMS, networking.
- three parts from c, c++, java respectively. You have to attend any two out of three sections.-
- there is a bonus section for python

In my set:
code 1:
team formation from previous year.
Given an array of non negative integers, select largest numbers from it given the following conditions:
Choose the numbers in sequence and keep removing them from the array, every time number can only be selected from first or last m elements, in case of conflict choose the one with lower index. In case first and last m elements overlap, choose the largest number of array. Return the total sum of them. solution here
another solution here
Can this be done using two priority queues of pairs sorted in custom order?

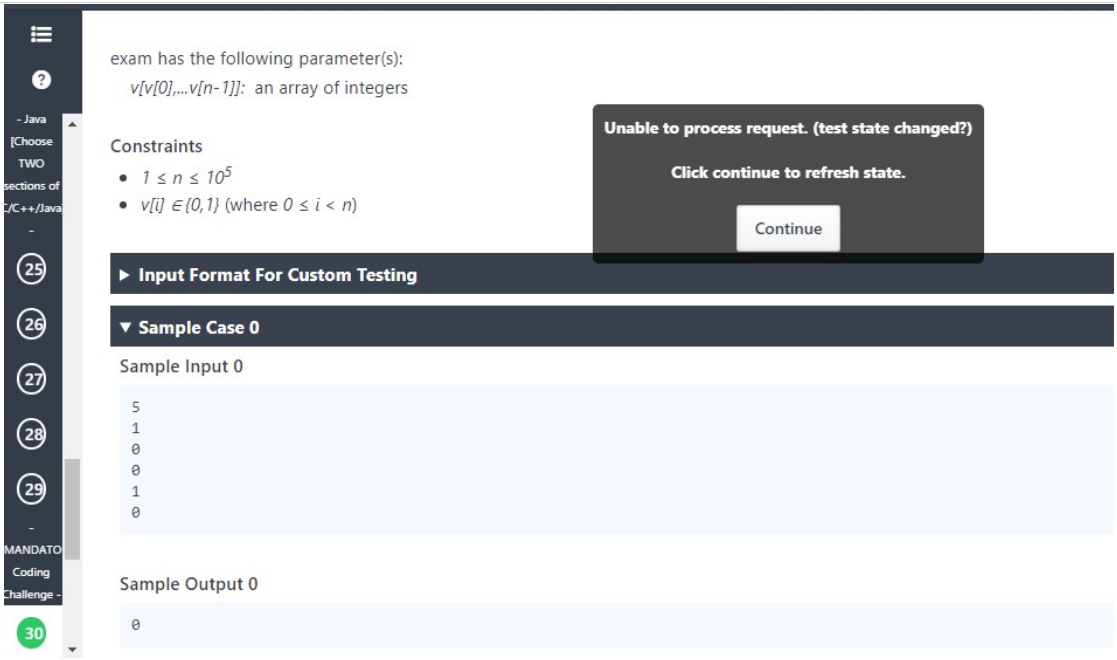
code 2:
You are given a string of only small character and an integer k. And you are given an array of value (0/1) for every character. 0 means normal and 1 means special. k denotes how many normal characters at most you can use in your longest substring.
ex:
string=abcde, k=1;
charValue: abcdefghijklmnopqrstuvwxyz
10101111111111111111111
then longest substring would be abc or cde. so answer will be 3.
explanation: “abc” one normal char is ‘b’. so you can not include ‘d’ -anymore, because k=1. same apply in “cde”.
** you have to do two different coding question in two different languages.
** there are still many questions. in another set, I heard, “simple query” was there from previous year.

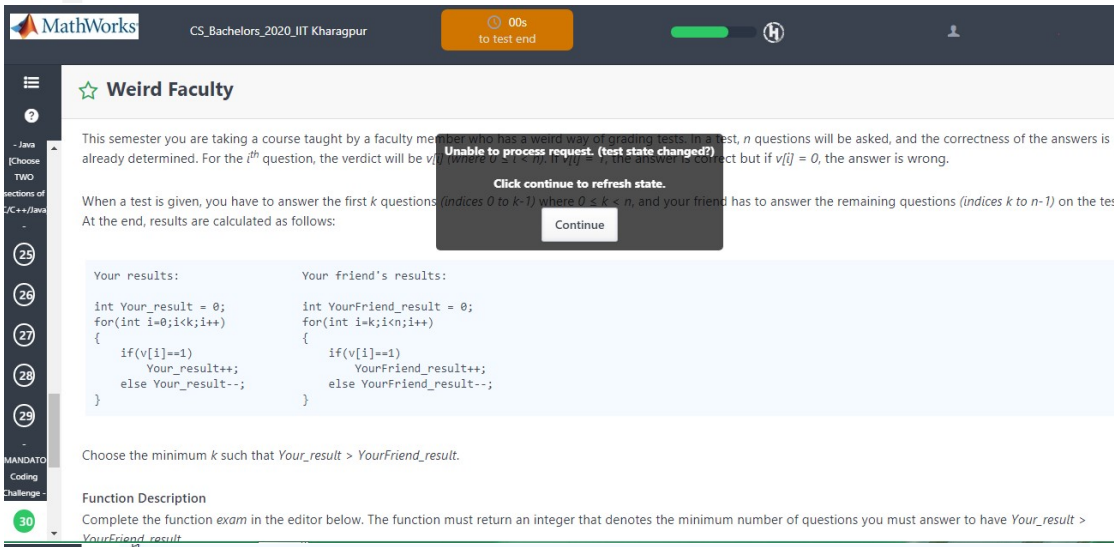
Code 2:
There was another question named DIAMOND MINE which has been asked previously.

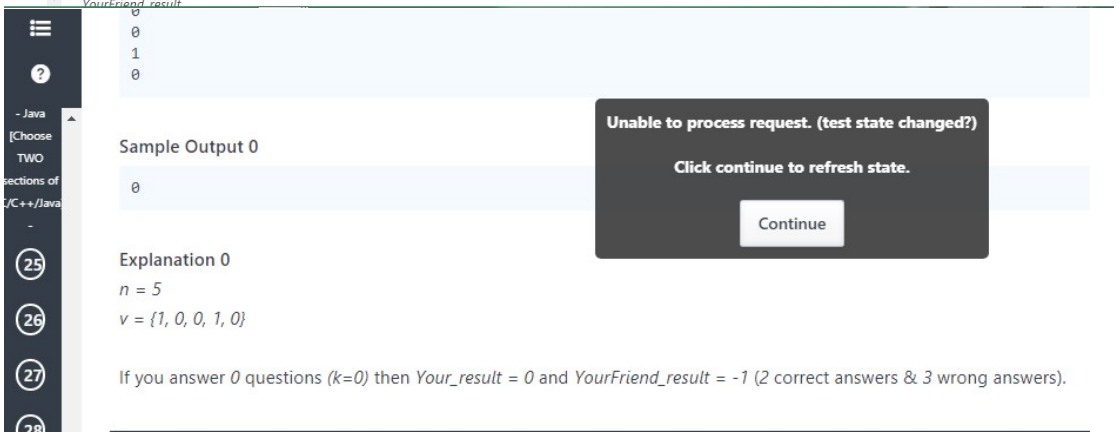


Solution approach - I tried using recursion approach, the answer was correct BUT it was showing TLE on most of the cases
there were 15 test cases and I passed 3 using recursion.
you have to use dynamic programming.
This is similar to LEETCODE 741 cherry pickup, here is the link

Code.4: 2 sum
Code.5 : roll a string. rotate characters of a string for an array of queries. eg if query is 4 and string is “kharagpur” then output should be “libsagpur”
Code.6: Distinct pairs forming a target sum in an array (repeat of prev. year)
Code7:







sol: link

IIT Kharagpur

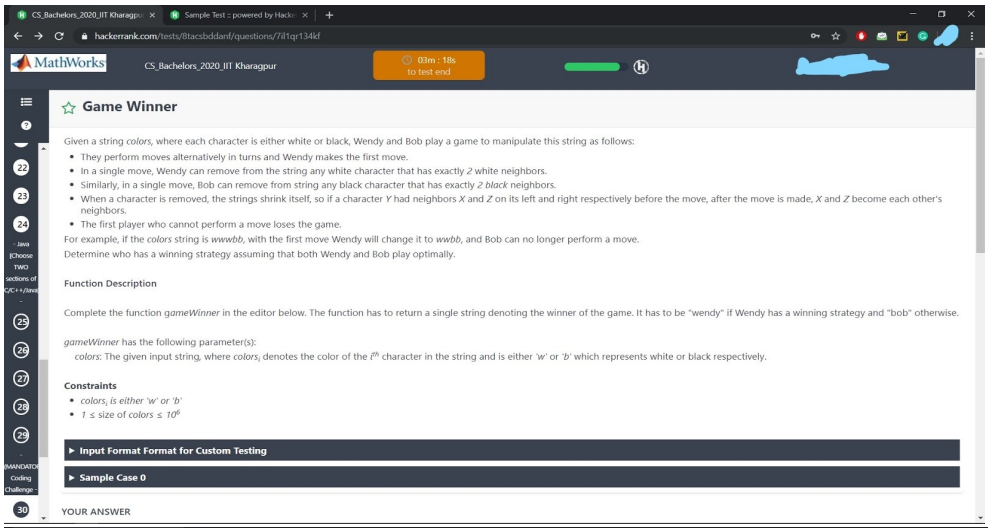
Time - 90 mins

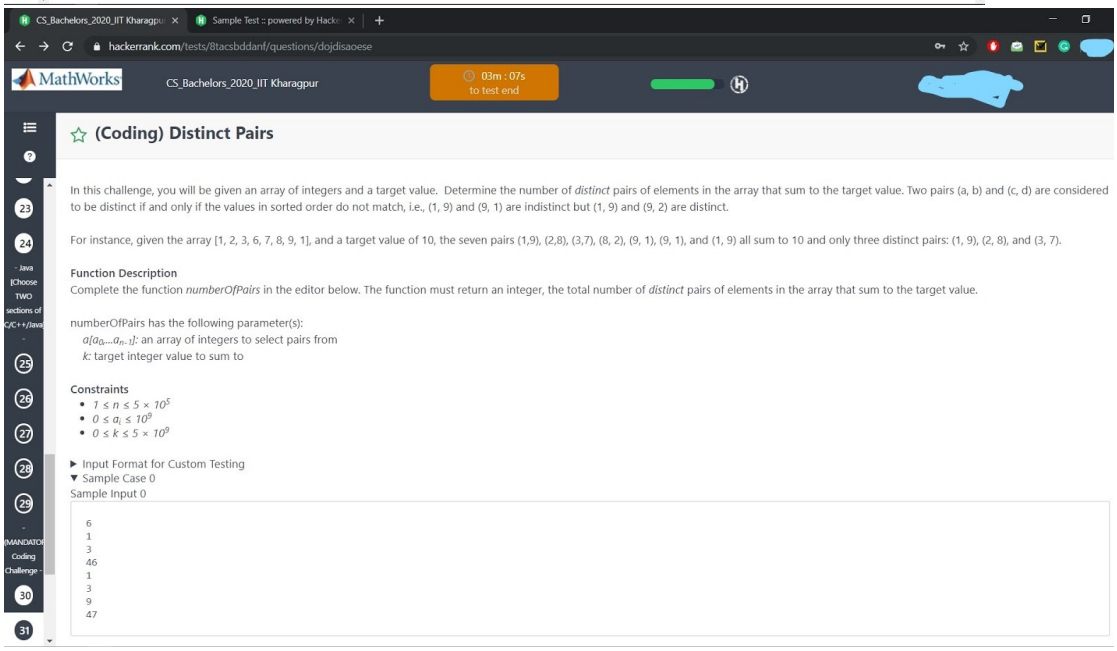
6 questions -Aptitude/probability, 6- c language, 6- c++,6- OS, 5-java(choice),5 python (bonus)

language allowed(c/c++,java)

write codes in any two different language

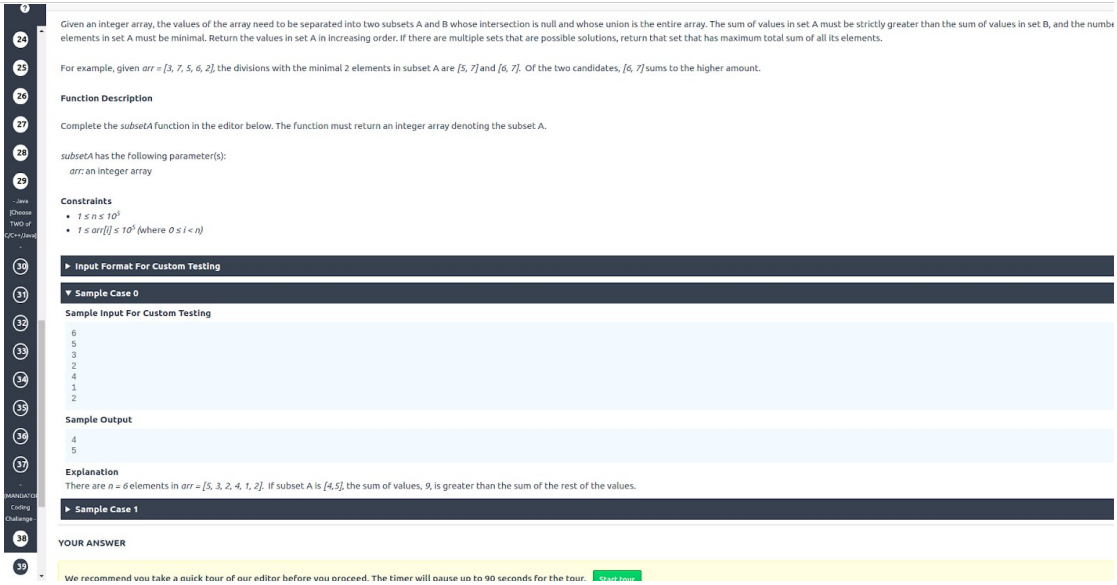
+





IIT Kanpur

There were different questions for different sets (2 coding questions per set).



Given an integer array, the values of the array need to be separated into two subsets A and B whose intersection is null and whose union is the entire array. The sum of values in set A must be strictly greater than the sum of values in set B, and the numbe elements in set A must be minimal. Return the values in set A in increasing order. If there are multiple sets that are possible solutions, return that set that has maximum total sum of all its elements.

For example, given *arr = [3, 7, 5, 6, 2]*, the divisions with the minimal 2 elements in subset A are *[5, 7]* and *[6, 7]*. Of the two candidates, *[6, 7]* sums to the higher amount.

Function Description

Complete the *subsetA* function in the editor below. The function must return an integer array denoting the subset A.

subsetA has the following parameter(s):
arr: an integer array

Constraints

- $1 \le n \le 10^3$
- $1 \le arr[i] \le 10^5$ (where $0 \le i < n$)

▶ Input Format For Custom Testing

▼ Sample Case 0

Sample Input For Custom Testing

```
6
5
3
2
4
1
2
```

Sample Output

```
4
5
```

Explanation
There are *n = 6* elements in *arr = [5, 3, 2, 4, 1, 2]*. If subset A is *[4,5]*, the sum of values, 9, is greater than the sum of the rest of the values.

▶ Sample Case 1

YOUR ANSWER

We recommend you take a quick tour of our editor before you proceed. The timer will pause up to 90 seconds for the tour. Start tour

Diamond mine (previously asked)
Roll a string
https://www.geeksforgeeks.org/roll-characters-string/
Weird Faculty
Team selection

IITG

2 questions from the pool of question.
I got: Team Selection and normal and special string both are repeated question.
Diamond MIne.

NUTANIX

1. Implement OS scheduler. N tasks with burst time and K-core processor
2. Graph with Red-Black nodes. Minimum weight to reach from source to dest such that abs(count(red)-count(black))
3.

*** Can anyone tell what do you mean by weight in the second question? I believe it should only be about minimizing **abs(count(red)-count(black))**

Can anyone provide approach for 1st problem?

IITD

2 Questions, 1.5 hr
Role: Member of Technical Staff
Open for M.Tech
https://imgur.com/a/kPqGWHf
Can anyone explain sample case of ques: “Tree Enigma”? I think the ans should be 3.
step1 : operation 2 on node 1
step 2: operation 2 on node 3
step 3: operation 1 on node 5
Yes, the answer should be 3 for the sample test case

Tree Enigma
Gotham Rises -

IITKGP, IITG

1.5 hour - 2 questions (Very tough)
https://imgur.com/a/q4sQzLV
Please post solutions if someone passed it
KOi solution daal do plz!!! urgently required….KGP and Guwhati guys????+1
Kisi se nae hua bbhaiiiiiiiii..sorryyy
Haan jaldi daalo plzzzzzzzzz

https://drive.google.com/drive/folders/1n2HDwHJEgF7wxr8byaf8Trfdm_E29g47?usp=sharing

soln?

IITR
Same problems as IIT BHU.

IITB

https://imgur.com/a/KumG3tg

THOUGHTS POT

1. Build BST from sorted LL. https://www.interviewbit.com/problems/convert-sorted-list-to-binary-search-tree/
2. Snakes and Ladder game.
3. Max length valid palindrome //what does it mean ? (longest palindromic substring?)

IITG

3 Questions
90min
Mtech Allowed
https://imgur.com/a/pd4bGH8 LINK NOT WORKING !!!!!!!!!!!!!!!!!! Use this link (https://imgur.com/a/pc4bGH7) somebody changed that one!

IITR

3 Questions
90 min

Q.1

You are given a tree with A nodes and A-1 edges which is rooted at 1.
There are C queries and for each query you are given two integers d (the node number) and e and you have to find the maximum value when e is xor'ed with any of the ancestors of d or d itself.
Formally, find the maximum value which can be obtained when e is XOR'ed with any node in the path from d to root. XOR is bitwise XOR operator.

2 <= A <= 100000
Tree given in the form of an array B (one indexed) with A-1 elements where B[i] denotes parent of i+1 th node.
1 <= C <= 300000
1 <= D[i] <= A — node number d
1 <= E[i] <= 300000 — the number to be XOR'ed e

Input
A = 8
B = [1, 1, 2, 2, 3, 3, 1]
C = 5
D = [2, 3, 5, 6, 8]
E = [1, 1, 5, 4, 10]

Output
[3, 2, 7, 7, 11]

GOLDMAN SACHS

1. **What is the probability of getting consecutive 6,6 before consecutive 6,5{Please verify answer: 1/2}[I am also getting ½][It is not ½ for sure]**

2. Derive an expression for the expected number of steps an ant makes to travel from one vertex to diametrically opposite vertex of an N dimensional object(eg - N=3 is cube). The ant is free to move at any path each time from a vertex.
Is the question correct? Is ther+e a condition on number of steps(hope it is in 'n' steps) ans: $(n! / n^n)$? else isn't the answer 1 ..?
Answer is 10(N=3) assume some variable and do recursion
https://math.stackexchange.com/questions/28179/logic-question-ant-walking-a-cube
3. Prove that for a given ring+, there exists at least two diametrically opposite points, which will have the same temperature (temperature is continuous along the ring).
4. What is expected n
5. No. of throw to get consecutive 6 different numbers on a dice.d no. , Also, many questions were on the higher level concept of "Expectation". So do study the same.
6. Leetcode problem: **Product of array except self**

IITR,IITKgp, IITD,IITG,IITH, IIT ISM, IIT BHU

ANYONE HAS ANY IDEA ABOUT THE NUMBER OF OFFERS THIS TIME??
Test on HackerRank | STL Allowed | 5 Sections | Total 150m | Section Inter-switching Allowed | All questions same for All

2 Coding Questions
10 MCQ related to Coding
1 Advanced Coding Question Did advanced question carry more weightage? Also, Which one of the below questions were mapped to Advanced ?
2 Subjective Question (based on your experiences)

Coding Questions:

1. A person wants to visit the doctor on alternate days, and since he is forgetful he doesn't remember if he went to the doctor the previous day or not. So he decides that if he starts going on an odd day, he will go on all odd days and similarly for even. The input is a 3 integers, year, month and day. You are supposed to answer how many days does he go to the doctor according to the alternate regime. For eg: if year = 2019, month = 3 and day = 31. The output would be 1 as he goes on all odd days and the 1st of April is odd so, he goes the next day as well. Hence he only went according to routine on the first day.
2. A series is defined such that if we have n, we have to subtract the leftmost digit from the number until we reach 0. For eg: let N = 11, then the series is 11, 10(11 - 1), 9(10 - 1), 0(9 - 9). Now we are given an input K(length of sequence) , we have to determine the number N such that N is maximum when we have a series with K elements. Eg, for K = 3, we have output as 10 as is deducible from the above explanation.
Isn't the output 11 for K=3, correct me if I am wrong. What were the constraints ?
Anyone with the approach or solution ?
3. Almost Sorted Array - find minimum nos. that must be deleted so that array is almost sorted. (An array is almost sorted if it can be sorted by deleting at most 1 element.) Eg 2,1,5,4,6 So answer is 1. As if we delete 1 or 4 we get almost sorted array. Can be solved using nlogn version of LIS (Same as Appdynamics IIT Kgp)

Probability question:-
1) 2 dice are rolled. find probability that product is less or equal to 25. (Answer - 33/36 = 11/12)
2) Find area enclosed between sinx and cosx (Answer: 2*sqrt(2))
3) 1/x + 1/y =1/360 . Find natural number pairs of x and y which satisfy it (Ans = 105)
4) Lim (x->infinity) (lnx /x)^(lnx/x) (Answer=1) (shouldn't it be 1/e??) How?? lny->-1 where y is the given function, so y→ 1/e +1+1+1
No , lim x-> infinity (lnx/x) =0 So after u take log on both sides, RHS becomes 0 so log L =0 so L = e^0 =1
5) A glass is dropped and it breaks into 2 pieces. It is repeated multiple times find the variance of the shorter length (Ans : 1/48)
6)Matrix given 3*3 (None of a,b,c, are 0, find 1/a + 1/b + 1/c) Ans =-1

3) A polynomial was written on the board x^2+100x+1. Any student can now go to the board, they can either increase or decrease the coefficients b or c by 1. Finally one sees the polynomial as x^2 +x+100. Does at any point in the intermediate time, it has the integral roots?
It was given, coefficient b and c was always in the range 1 to 100.
Options: 1. Yes 2. No
What was the answer? Yes

Computer Science Questions:-

1) 1 easy Network question, 1 Os question, 1 Theory of computation on Regular expression and 2 questions on set theory

OS question:

There is a pool of threads available. Need to complete all the jobs J1,J2,J3,J4,J5,J6,J7.
J2 dependent on J1;
J3 is dependent on J1;
J4 is dependent on J2;
J5 is dependent on J2;
J6 is dependent on J4;
J7 is dependent on J5 and J6;
J5 is dependent on J3;

A dependent job starts only after the job it is dependent on is completed.
The processing times for the jobs are J1:100ms J2: 30ms; J3: 20ms J4:15ms J5:25ms J6:65ms J7: 60. Find the time to complete the process.
What was the answer for the jobs problem Ans = None of the above
Does anyone remember the options given for the regex question?

2) Stock buy and sell only once. time complexity was asked Ans =O(n)

3) Time complexity for the following code : Ans = O(n)?? Should be O(nlogn) Let n = 2^x, total computations = n + n/2 + n/(2^2) + …. + n/(2^x)
Take n common, so n*(1 + ½ + ¼ +... + 1/(2^x)), now even for very large x, lets say infinite, it will converge to "2" use GP sum, Hence O(2*n)=O(n) (In exam I did O(n*log(log(n)) :P)

```
for(i=n;i>0;i/=2)
    for(j=i;j>0;j--)
        count++;
```

Answer is pretty straight forwad O(nlogn) since it runs n+n/2 +n/4 + n/8 +.... times which is nlogn .See above explained complexity O(n)
Btw O(nlogn) = n + n/2 + n/3 + n/4 …

4) 2 questions on java language : One was on constructor overloading and one was on invalid constructor

Subjective Questions:

1. You are working on a team Project. You are on track and have lots of work to do. Your teammate has a personal situation and would not be able to complete the work. What would you do? (Word Limit : 200 words)
2. Give a brief description of a project about which you were motivated enough and describe how it turned out. (Word Limit : 200 words)

CISCO

(Software Consulting Engineer)
1)Digital Electronics+aptitude+3 finance questions+networking+os+basic puzzles. (Every section had cutoff).
2)one programming question: Confusing one,had to play with cin.getline(), cin.ignore() and many terms to read and output strings in different lines.
Total 26 questions, 25 mcqs and 1 coding. Coding was also of 1 mark. Give more time to mcqs. 1 hour time was given. Platform:HR
Can somebody tell the exact programming question?

IITK

MCQ were from Operating system, networking, logic gates, digital electronics, aptitude, basic C Programming, computer organization. 60 Min 27 32q Questions
Operating System(around 3-4 questions):

1. Processes with their arrival and run time was given and one has to find lowest average turnaround time among round robin, FCFS, SJF scheduling policy
2. One was related to deadlock

Coding Question (There were two questions):

1. Longest distinct characters substring
2. Given two array, first represent ids and second is the time taken for each process id. Return top k ids with maximum time. If two processes take same time, then pick most recent process-id.

Aptitude(around 4-5 questions):

1. One was using AM>=GM, This section was simple
2. Family relation question
3. maximum distance between any two points in a cube

Logic Gates

1. POS was given and one has to find equivalent SOP

Networking(1-2 questions):

1. This was based on the definition of different transmission modes: simplex, half duplex and full duplex.
2. One specific question related to VMWare configuration (can't recall exact Q: 'what is VMWare consolidated backup?' there were options provided)

Coding,Networking,OS exactly same questions as IITK
Can someone post the screenshots of the MCQs? +1+1+1+1

IIT BHU

All MCQs + coding questions, enjoy - https://drive.google.com/drive/folders/15nzv0IcH0r0yGIBKag4XikNEMuqU489a?usp=sharing

IITG

Coding Questions: https://imgur.com/a/Scs0gNH

FLOW TRADERS

IITG

Profile: Graduate Trader.
Coding: only in python.

Problem One: Tennis Game
Tennis players A and B have probabilities of a = 0.6 and b = 0.4 respectively to win a point. The current score is 30:30, what is the probability that tennis player A wins this game?
The games are scored as per normal tennis rules starting at "love" (or zero) and go up to 40. From love, the first point is 15, then 30, then 40, then the game point, which wins the game. One of +the players has to win by two points. Say your opponent wins the point after you are up 40–30, the score would then be tied, and you would announce: "40–all", otherwise known as "deuce". Now you continue to play until one of you has a two-point advantage and wins the game.
You need to submit both python file and image of your work inside a zipped file
You'll receive -1 for all wrong submissions so make your submissions judiciously

Problem Two: Elevators
There are n elevators moving independently of each other in a building of 100 floors. The elevators move continuously through floors 1, 2, . . . , 100, 99, . . . , 2, 1, 2, . . . , except that they stop on a floor on which the button has been pressed. Assume that time spent loading and unloading passengers is very small compared to the travelling time. Suppose you reside on floor 92, answer the following questions accordingly:
What is the probability that the first elevator arriving on your floor moves up?
Suppose the lifts move at the rate of 20 floors per minute, what is the expected time it takes to reach floor 1 from floor 92, assuming you take the first lift that arrives on your floor. Compute your answer in seconds and just give the integral part. So if your answer is 123.67, return 123
We'd recommend that you try to solve this for small values of n and then figure out the general logic
You'll receive -1 for all wrong submissions so make your submissions judiciously

Problem Three: Logicians with Hats
Thirty-one logicians came from different countries to participate in the Annual International Conference on Logic. After greeting all 31 participants, the main organiser remarked that it would be necessary to run a special test to check whether all participants were indeed logicians as they claimed to be. He explained kindly that in the past there had been cases where some non-logicians tried to get into the conference, and he would not allow that to happen again. He further explained the basis of the test: he said that each participant would get a dot of some colour that he would place on each participant's forehead. Each participant would be allowed to look around (thus everyone would see the dots of all other participants except his own), but no communication of any sort would be allowed. After a while, the organiser would ring a bell and if any participant had deduced the colour of his or her dot, they should leave the room. The organiser would ring a bell as many times as necessary. As the organiser knows the colour of all of the dots, he also knows when each participant should leave the room (if the participant is a logician). This was the essence of the test.
At this stage, the organiser asked the participants whether there were any questions. One participant raised his hand and asked whether it was possible to pass the test - i.e., to correctly guess the colour of his dot. The organiser replied that he had selected the colours of all the dots in such a way that every participant should be able to deduce the colour of his/ her dot.
As this was the only question from the crowd, the test started. The organiser placed the colour dots on the foreheads of all of the participants and waited for a while so that everyone had a chance to look around. After a few minutes, he rang the bell for the first time. At this moment, four participants left the room. When he rang the bell for the second time, all the participants with red dots left the room. When he rang the bell for the third time, no one moved. When he rang the bell for the fourth time, at least one participant left. Soon afterwards, he rang the bell again, the participant who asked

ITRON

IITM

1.Aptitude 35 questions
2.3 coding questions
1. https://www.geeksforgeeks.org/find-two-numbers-sum-xor/
2. https://www.geeksforgeeks.org/perfect-number/
3. Given N lists, each list has P strings find if count of unique strings is greater than K.

NFERENCE LABS

IITM

2 coding questions
1. Array Journey

Array Journey

You are standing at the start of an array of integers. You want to move to the end of the array, collecting as many points as possible along the way. Each step can cover a r number of elements. Each time you land on an element, its value is added to your score. What is the maximum score achievable?

For example, you are at position *0* of the array *path = [10, 2, -10, 5, 20]*. Your maximum step can cover *k=2* elements. Your score starts at *10*, the value at index *0*. Your first you on elements valued *2* or *-10*. You choose to land on *2* to achieve the higher score, now *10+2=12*. Next you choose between landing on *-10* or *5*. You choose *5* for a sc *12+5=17*. You make one final move to your goal and your total score is *17+20=37*.

Function Description
Complete the function *journey* in the editor below. The function must return a long integer denoting your maximum attainable score.

journey has the following parameter(s):
path[path[0],...path[n-1]]: an array of integers
k: an integer, the maximum step length

Constraints
- $1 \le n \le 10^5$
- $0 \le |path[i]| \le 10^5$, where $0 \le i < n$ and $|x|$ denotes absolute value of x.
- $1 \le k \le n$

▶ **Input Format for Custom Testing**

▼ **Sample Case 0**

2. The Jungle Book

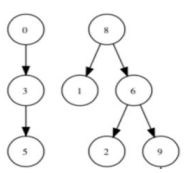
The Jungle Book

There are a number of animal species in the jungle. Each species has one or more predators that may be direct or indirect. Species *X* is said to be a predator of species *Y* if at le of the following is true:

- Species *X* is a direct predator of species *Y*.
- If species *X* is a direct predator of species *Z*, and *Z* is a direct predator of *Y*, then species *X* is an indirect predator of species *Y*. Indirect predation is transitive through any r levels.

Each species has a maximum of *1* direct predator. No two species will ever be mutual predators, and no species is a predator of itself. Your task is to determine the minimum nu groups that must be formed to so that no species is grouped with its predators, direct or indirect.

As an example, consider an array where each position represents a species and each element represents a predator of that species or -1 if there are none. The array is *a=[-1, 8, 6 9, -1, 6]* and we'll use zero indexing. Generate the graph of predation. All labels are the indices within array *a*:



```
[5,2,9]
[7]
[4]
```

We need a minimum of 5 groups to satisfy all conditions.

Function Description

Complete the function *minimumGroups* in the editor below. The function must return the minimum number of groups formed given the rule that none of the species will a its predators.

minimumGroups has the following parameter(s):

predators[predators[0],...predators[n-1]]: an array of integers where *predator[i]* represents the direct predator of the i^{th} species or -1 if there is none.

Constraints

- $1 \le n \le 10^3$
- $-1 \le predators[i] < n$
- $predators[i] \ne i$

▸ **Input Format for Custom Testing**

▾ **Sample Case 0**

http://prochal.com/2019/06/the-jungle-book/

PLEASE ADD THE PROBLEM DESCRIPTION FOR "ARRAY 4

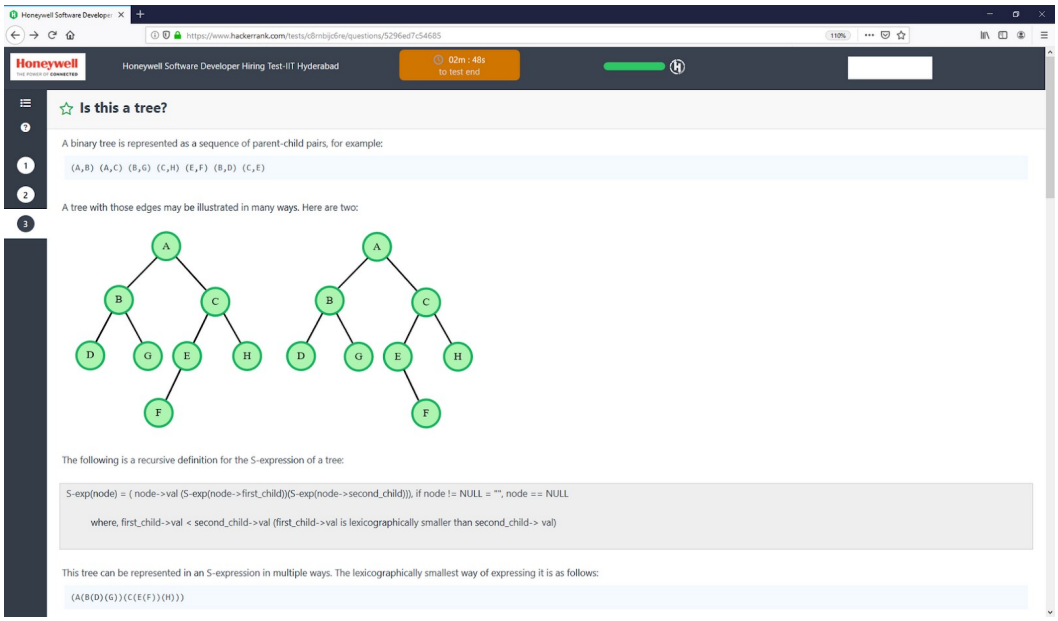
HONEYWELL

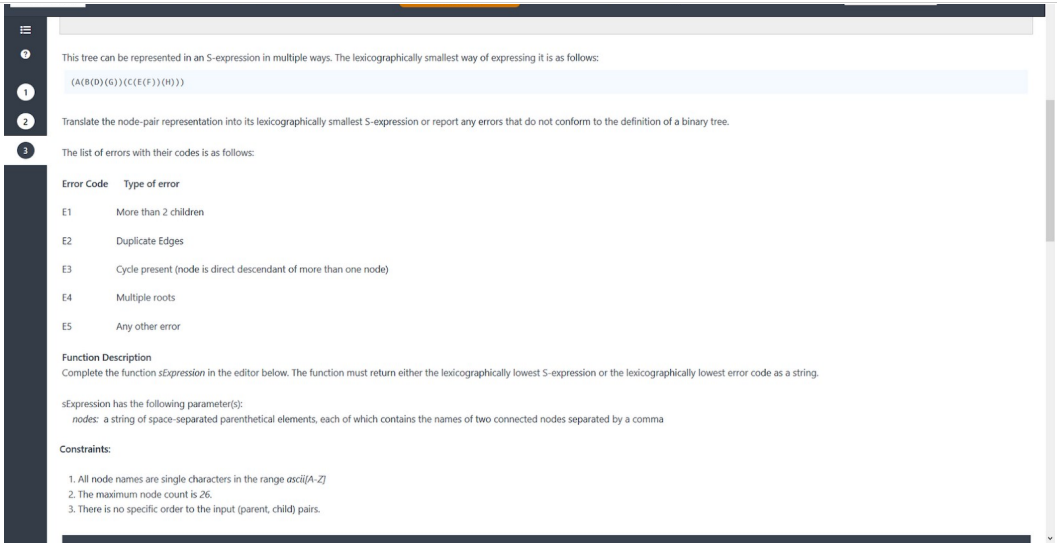
IITH

1) Activity Selection Problem :- Arrival, duration arrays of companies given. Need to schedule such that number of meetings are maximised
https://www.geeksforgeeks.org/activity-selection-problem-grefaceedy-algo-1/

2) Dynamic Programming :- N*N matrix of (-1,0,1) given. -1 represents blockade, 1 represents a diamond and 0 is for empty route. A traveller goes from (0,0) to (n-1,n-1) and returns to (0,0). Need to output the maximum no of diamonds collected (a diamond can only be collected once)
https://www.geeksforgeeks.org/maximum-points-top-left-matrix-bottom-right-return-back/

3) Tree based question:- given edges in (parent,child) form. I.
sol 3





IITKgp (Mechanical and Engineer profile)

30 MCQ (Output of c/c++ programs) easy
2 coding questions:- school level
1) sum of numbers between 100 and 9000 divisible by 7. (You can just calculate manually and do cout.
2) print prime numbers from 1 to 100
Somescreenshots : https://drive.google.com/folderview?id=1Bjsc-oHCmf5JvWiSQQeiE3-4NG5oEhnP

WORLD QUANT

IITD

Is there any cg cutoff?8.5
40 questions, timed test with each question having its own time. Three questions were the same as that in last year's doc.
Apart from them:

1. https://brainstellar.com/puzzles/1018endrive
2. https://math.stackexchange.com/questions/2455709/possible-dimensions-of-the-intersection-of-three-vector-subspaces
3. A stock increases in its value by 5% or decreases by 5% in a day with equal probability. Expected value after 60 days
is it's answer is =0?? It will be the same as the initial price of the stock
4. r1=distance of a point from center, r2=distance of point from circumference. r=min{r1,r2}. Median of r. (solution : (r by root 8) ???
5. A question on definition of exponential decay.x
6. https://math.stackexchange.com/questions/1839496/expected-number-of-tosses-to-get-3-consecutive-heads
7. z^3-2z-5=0 has roots a,b,c. Cubic equation with roots a^2, b^2, c^2 with leading coefficient 1.
8. Volume of tetrahedron inside a cuboid, such that 4 vertices have no common edges. (Do with box product)
9. Some questions on code outputs

Samsung R&D, Bangalore

Test Details & Pattern:

Write code in C/C++/Java to solve a given problem. Code should compile, run and pass all given test cases.

- Emphasis on working code with efficient Programming Logic, Algorithms, Data structures, NOT dependent on any Platform/API

Duration	**3 hours**	
Allowed Languages	C, C++, Java	· Candidates proficient in C# or other language can also take the test, by choosing one of C / C++ / Java to write the code as the focus is on Algorithms & Data Structures. (Some language-specific learning/refreshing and practice

<table>
<tr><td rowspan="5">Allowed Functions,

Libraries</td><td rowspan="5">Basic memory mgmt, input, output</td><td>Language</td><td>Memory</td><td>Input, Output</td></tr>
<tr><td>C</td><td>malloc, free</td><td>scanf, printf</td></tr>
<tr><td>C++</td><td>new, delete, malloc, free</td><td>cin, cout, scanf, printf</td></tr>
<tr><td>Java</td><td>New (memory freeing is automatic by garbage collector)</td><td>java.util.Scanner, System.out.print, println</td></tr>
<tr><td colspan="3">· Other functions, libraries not allowed
· Test taker needs to write any required utility functions</td></tr>
<tr><td>Allowed IDEs</td><td>· VS (C/C++)
· Eclipse (Java)</td><td colspan="3">· To be pre-installed on the Test PC/Laptop</td></tr>
<tr><td>Criteria for Passing Test</td><td>Pass all test-cases</td><td colspan="3">· “Sample test-cases” are given to test locally
· Developed program has to:
· Pass all “Evaluation test cases” on server (not shared with test-taker) and generate the output in specified format
· Meet efficiency criteria given in question (max limit on execution time, heap memory, and stack)</td></tr>
</table>

2) Preparation recommended

a) **Refresh/Learn data structures & algorithms**

i)

e.g., Array, Grid, List, Tree, Graph, Map, String, Search, Sort, Permutations, Combinations, Probability, Traversal, Path finding, Optimization, Dynamic Programming etc.

ii) Some popular external websites for study/practice: geeksforgeeks, hackerrank, codeforces, topcoder…. ,..... codechef, spoj, project-euler etc.

IITD

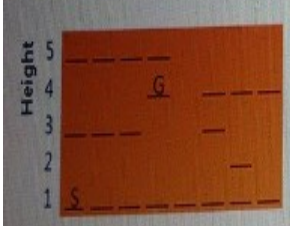
Since he obtained the map of the tough rock-climbing course in advance, he wants to prepare himself to successfully complete the course.

N is the height and *M* is the width of the rock. What '-' in the map means is that there's space to place foot into that corresponding spot.

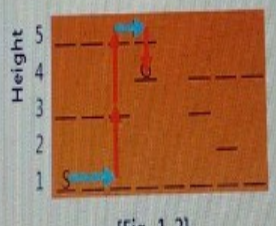
When he is climbing and '-' exists sequentially on the same height, **he can freely move**.
But if '-' is more than one space apart, moving towards the **horizontal direction is impossible due to safety reasons**.

From the current location, if, although the height is different, '-' exists right in the level above or below,
he can safely move up or down by using his equipment and physical strength.
Here, depending on how high/low he moves towards the upper or lower direction at one time,
the level of difficulty of rock climbing gets determined.

For instance, suppose a rock map such as below is given. (Empty space means there's no space to place foot).
The starting point of climbing is always the very left end point (height 1) on the ground and is expressed as *S*.
The goal point (or final point) is expressed as *G*.



[Fig. 1-1]



[Fig. 1-2]

In this case, since the maximum height of moving from the starting point to reach the goal point
by either moving up or down is 2 at one time, the level of difficulty of this rock is 2.

Software Engineer Research(open for B.Tech as well as M.Tech) - CGPA criteria: 8.5

Date: 18/09/2019
Platform: Their software
Test was of 3 hour. Only 10 submission allowed(compile as many times you want). 50 test cases to be passed

Problem: (same as last year's IITK problem)

Constraints:-

1<=N<=50, 1<=M<=50
Note: You can't use anything else than cin, cout(scanf,printf), new, delete from STL in c++ as mentioned in the above instructions (you can't use vector, priority_queue and all)
Solution 1: I used dijkstra kind of shortest path algorithm, looped over to find min at each step(as you can't use STL's priority_queue(heap)), solution's complexity - O(N^2 * M^2) What should we find in this question ?

NOTE: don't use pure DFS kind of backtracking method because there was time constraint also. I used BFS with a matrix which stored minimum jump to a point and it passed all the test cases.

I still did not understand the question. Can someone please explain the question ?

Can somebody explain how this question can be done using dfs/bfs? + 1

https://ide.geeksforgeeks.org/yHXY2Phq9Y (Please let me know if the solution is correct)(In input, denote goal state by G)

Note: Their IDE sucks. Install Visual Studio 2013 Version Only their versions don't work) for C++ Or Eclipse IDE for Java.

IITG

same ques as IITD. Same rock climbing ques.
They even gave solution approach with question, which worked perfectly.
can you please explain what was the solution approach?

NIT Agartala

Q) There is a source (S) and destination (D) and a spacecraft has to go from S to D. There are N number of wormholes in between
which has following properties:

- Each wormhole has an entry and an exit.
- Each wormhole is bi-directional i.e. one can enter and exit from any of the ends.
- The time to cross the wormhole is given and the spacecraft may or may not use the wormhole to reach D.
- The time taken to travel outside wormhole between two points (x1, y1) and (x2, y2) is given by a formula |x1 - x2| + |y1 - y2| where, (x1, y1) and (x2, y2) are the coordinates of two points.

The coordinates of S and D are given and we have to find the minimum time to reach D from S.
Note: It's not mandatory to consider all the wormholes

Example : source=(0,0), destination(100,100), wormholes=3

coordinates are:
(1,2),(120,120) Cost = 5
(4,5),(120,100) Cost = 21
(6,8),(150,180) Cost = 23
Sample output=48

Explanation:
Cost from (0,0) to (1,2) is 3
Cost of wormhole 1 is 5
Cost from (120,120) to (100,100) is 40
So, total 48 Someone please provide the solution with explanation . Wormhole Question asked in SRI Delhi

Can someone provide the constraints.Will backtracking pass?? Reply fast .

IITR

CGPA>=8.5 required
https://discuss.codechef.com/t/samsung-question-geeksforgeeks/17092 Repeated
NOTE: You can't use stl queue for bfs, have to implement it by yourself.

IITK

CGPA >= 8.5
Same Question which came in IITR just above. Repeated

last year's doc(Bruteforce but should work I guess) . Thanks @Shubham. Can we use BFS from every road and find the farthest rare element and update the answer if it is less. Is there any better solution than this for https://discuss.codechef.com/t/samsung-question-geeksforgeeks/17092 (problem form IITR and IITK).

IIT ISM

Wormhole question.

AppDynamics

IITD

GATE MCQs + Aptitude repeated same as that of 2018 asked in IITD:
https://imgur.com/a/PIXIxR8

What is the answer of grape crushing problem from the above link - 12,.ie, None
I'm getting 18
Code 1: Same as the previous year's 3rd question on **vowels** in the link above.
can vowels be done simply by using prefix sums after counting all strings starting and ending with vowels?
//YES
Code 2: https://leetcode.com/discuss/interview-question/363036/twitter-oa-2019-activate-fountain
Code3:
What is Code 3?

// Does anybody knows how to solve this Q.3?? please provide the solution below, it would be of great help. Which Qn3 are you talking about? Digit Sum question ..Can you plz explain the question. I'm not able to find it :(

// Dictionary which keeps a count of all the unique character.

IITK

MCQs: not too hard data structure problems, complexity analysis, probability (basic) and a few others
Coding: a simple array manipulation question
a very simple class implementation to test OOP concepts and Java language (it was Java-specific, couldn't use other language)
knapsack problem with a different cover story (buying and selling shares)

IITR

Eligibility:

UG JEE ALL

PG M.Tech. - CSE, EE, ECE

CGPA Criterion:

UG B.Tech. - CSE, EE, ECE (CGPA>7) IMSc. - MSM (CGPA>7) IDD - CSE, EE, ECE (CGPA>7) + Other Non-Circuital Branches (CGPA>8)

PG M.Tech. - CSE, EE, ECE (CGPA>7)

MCQs: Total 12 MCQ questions ,some of them were same as asked in IITD, 3 questions from SQL.
Code1: given height and positions of walls. Mud is filled in the region between two consecutive walls, such that height of mud is at max 1 greater than its adjacent height (of wall/mud). Find max height of mud that can be placed
Eg: pos: 1, 6, 10
height: 1, 3, 3.
mud placed: **1 -> 1**, 2 -> 2, 3 -> 3, 4 -> 4, 5 -> 4, **6 -> 3**, 7 -> 4, 8 -> 5, 9 -> 4, **10 -> 3**
Bold ones are walls, normal ones are height of mud at their respective positions
ans = 5;
Code2: array of length n, sliding window of size x, get minimum value in all the windows and

IIT KGP

(**CGPA Cutoff**: For circuital branches (7+), for all other depts (8+)) [12 MCQs + 3 Coding]

Most MCQs same as IIT D (https://imgur.com/a/PIXIxR8)
Other MCQs were on B-Trees, simple math problem on simple interest-compound interest
Coding:

1) Sliding Window Minimum Maximum (Same as IITR)
2) Mud Wall Question (Same as IITR)
3) Almost Sorted Array - find minimum nos. That must be deleted so that array is almost sorted. (An array is almost sorted if it can be sorted by deleting at most 1 element.) Eg 2,1,5,4,6 So answer is 1. As if we delete 1 or 4 we get almost sorted array. Can be solved using nlogn version of LIS

IITG

Same pattern as above.
https://imgur.com/a/huTMGSF Did anyone solve the third problem (digit sum) ?(Yes, it can be solved using digit dp)
Can someone please provide the solution for digit sum?

Logic for Connected computers question anyone ???

Cohesity

Was Cohesity opened for any other branch apart from CSE??Ans: No, just CSE.

Opened for M.Tech ??

IITD

CPI: 7
Role: Member of technical staff
Two coding questions. Code1 of 50 marks and Code2 of 100.

Code 1: Very similar to minimum window substring https://leetcode.com/problems/minimum-window-substring/
Here T was "AGCT"
Code 2: Given two equal sized arrays A and B. Also given an array S containing tuples (index1,index2).
Tuples in S can be used to swap elements of A at indexes index1,index2. Tuples can be used any number of times.
The task was to find the minimum hamming distance between A and B.
Hamming distance is total number of locations where A[i] != B[i]

Solution: Make an undirected graph where edges are pairs (index1, index2). Find connected components in this. Minimize hamming distance for each connected component of indexes greedily.
Proof: 1. No pair of elements in separate connected components can be swapped.
2. Every pair of elements in the same connected component can be swapped.
(There exists a sequence.)

** could you please elaborate more about the solution? I can not understand "Minimize hamming distance for each connected component of indices greedily" Reply: Let's say one of the connected component is composed of indices: 0-3-4-8 and the corresponding elements in A are: 10. 24. 90. 29 and in B are: 10. 10. 24. 90. Now. note that you can obtain any possible permutation of elements in a connected components, so, find out how many of B's elements in this component exist in
A' component (you can use 'map'). In this case the answer is 3.

IITK

Role : Research Engineer
CTC : 57 Lakhs
CPI : 8.5 (Only 25-30 people were shortlisted for the test. All had CPI above 8.5)

2 Questions : Hackerearth Platform **Duration :** 70 mins

Ques 1 (100 Marks):
A 0-1 matrix of width w and height h was given. 0 means black and 1 means white. Picture it like a bar code. If the whole column is filled with 1 then it's a white strip on a bar code. if n consecutive columns are filled with 0, then it will represent a black strip of width n. Now the matrix is not perfect(some columns are not completely white or completely black ie they have some irregularities).
Cost of switching a single 0 with 1 or vice versa is 1.
You are given x and y where x is the minimum width a strip in the barcode must have and y is the max width. You have to find the minimum cost required to convert the original imperfect matrix into a valid barcode matrix satisfying constraints on x and y ie each strip's width is between [x,y].
Very few people were able to do this. Brute force backtracking will not work(⅔ test cases passed though).
(Solution Approach?) Constraints?

IITR

Role: Research Engineer
CTC: 57 Lakhs
CPI: 8 and above

2 problems: Hackerearth **Duration:** 60 mins

Q1: 70 marks
N students are standing in a row. ith student has height H_i A student X can see a student Y in front of him only if all students between X & Y have height less than Hx. Find the number of possible pairs (X, Y)
Sol: Can be solved using stack

Q2: 100 marks
A car with fuel C is placed at origin on number line. It cost 1 unit fuel to move 1 unit of distance.The car has to reach a destination at a distance D from the origin. There are N fuel stations placed at positions Xi and it costs Ri to use the ith fuel station. At a fuel station the car can either ignore and continue or replace the original fuel with capacity Ci. Find the minimum cost needed to reach the destination.
Sol: can be solved with dp and segment tree. Start from end. For every i, if the car replaces the fuel with capacity Ci, find the maximum fuel station it can reach(using binary search) let it be j. dp[i] = r[i] + min(dp[x]) for x in range i+1 to j. This min can be calculated using segment tree and dp[i] is updated in the tree.

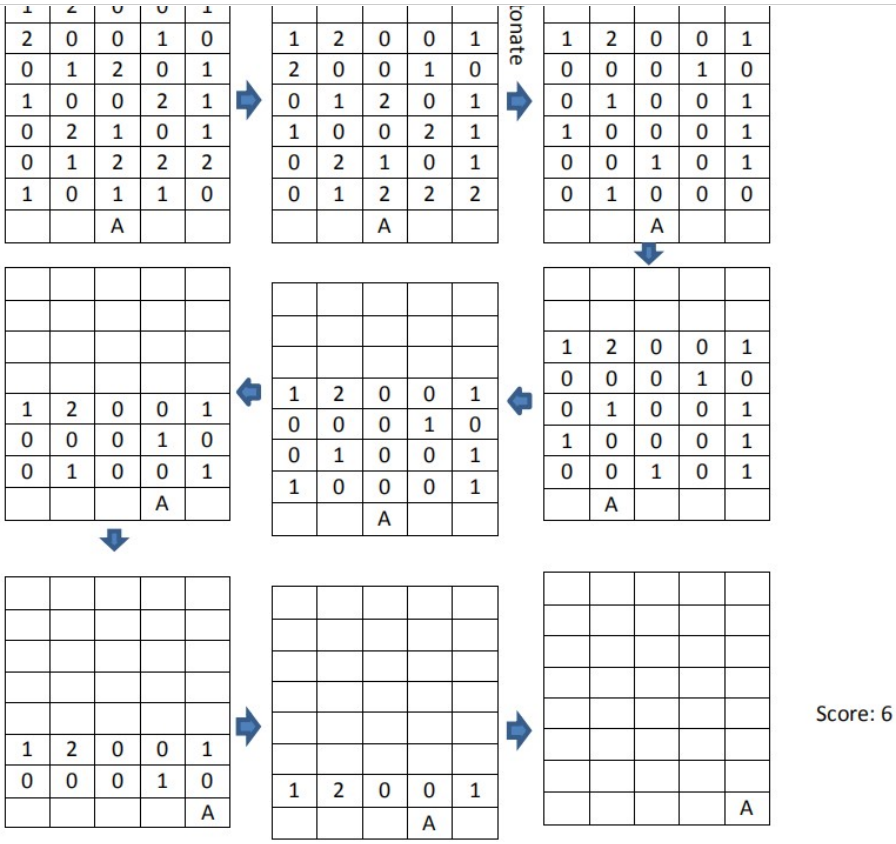
Samsung Research Institute Delhi

IITD

Wormhole Question repeated. Please post the code for question. It is repeated in all colleges. Posted previous year's soln under samsung r&d bangalore IITK section

IITK

https://www.geeksforgeeks.org/samsung-interview-experience-set-28-campus/ coding question.
We have a game where an airplane is placed in the middle column of the bottom row. The airplane can move right
or left by one step and in every step the row moves down. When the airplane meets '1' (coin) the number of
points increase by 1 and when the airplane meets '2' (bomb) the number of points decrease by 1. Whenever the
airplane meets the bomb with score 0 the airplane dies and game is over. The user has one detonate option
throughout the game where he can detonate all the bombs in the next 5 rows. Find the maximum number of
points (coins) that can be collected by the user. Number of rows 1 <= N <= 12. Return -1 if score < 0



Solution: https://ide.geeksforgeeks.org/yEMG56cHIn Passes all test cases

IITG

1 coding question, 3hr. Other details already mentioned in doc.
- Graph Cycle : https://drive.google.com/file/d/1ftOziYTPrsIKlQwSdKrZsOuZYITEDXZy/view?usp=sharing

(Same question was asked in SRI Noida also in IITG)

IITKGP
Noida and Delhi both have same test.

Marathon
Mr. Choi has to do a marathon of D distance. He can run at 5 different paces, each pace will have its time consumed per km and its energy consumption.
Mr. Choi can only run till he had energy left.
Find the minimum time required for choi to complete marathon if he has H energy.

Sample Test Case:
No of sample testcases
H, D
number of pacevalue = 5 which is always 5
minutes seconds pace energy
2
130 30
4 50 7
5 0 5
5 10 4
5 20 3
5 30 2

5 10 4
5 20 3
5 30 2

Another Sample test case:
INPUT :
Input order :
Total test cases
Total Energy(10) Total Dist(5)
Next 5 lines - input for 5 different paces in min,sec and energy order

eg.
Total_energy Total_distance
Min(pace1) sec(pace1) engery_consumption(pace1)
Min(pace2) sec(pace2) engery_consumption(pace2)
Min(pace3) sec(pace3) engery_consumption(pace3)
Min(pace4) sec(pace4) engery_consumption(pace4)
Min(pace5) sec(pace5) engery_consumption(pace5)

****

2
10 5
6 19 6
6 29 5
6 39 4
6 49 3
6 59 2
600 40
3 11 20
3 18 16
3 36 14
3 41 13
3 53 12 =>answer : 137min 11sec for 2nd TC

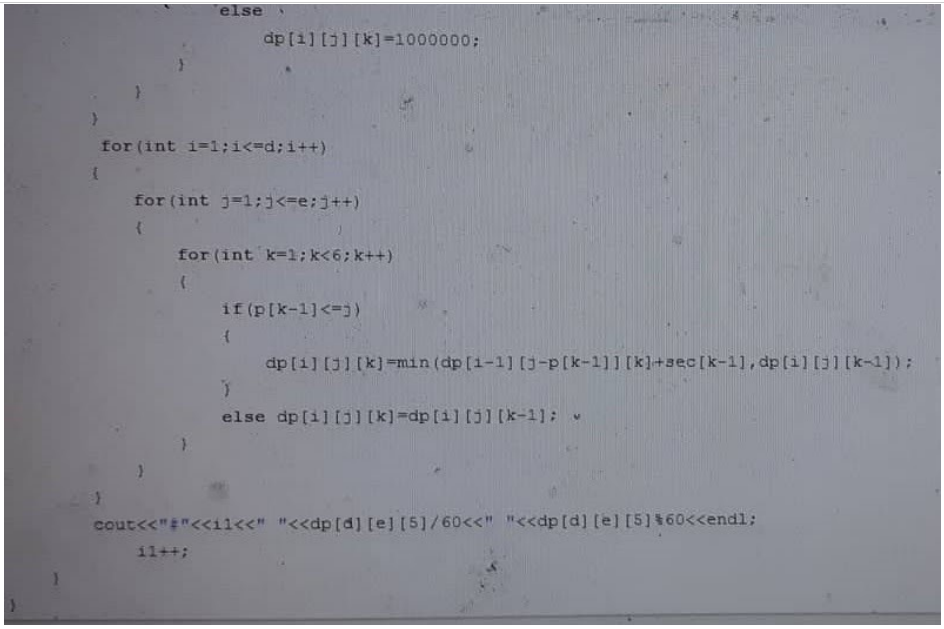
Approaches:
Using For loop to calculate all combination
Using recursion with Pruning to find all combinations
Using Recursion with for and While loops to find all combinations
Using DP to find the solution (more programming required in this approach)
Using recursion with memorization
Please find attached solutions for first 4 approaches

Dp approach: https://ide.geeksforgeeks.org/r0waWCuUZC Passed all test cases
Brute force: https://ide.geeksforgeeks.org/wNM6GQWNII Passed all test cases
Solution 3: Passed all 50 cases

```
{
    int t;
    cin>>t;
    int i1=1;
    while(i1<=t)
    {
        int e, d;
        cin>>e>>d;
        int a,b, sec[5], p[5];
        for (int i=0; i<5; i++)
        {
            cin>>a>>b>>p[i];
            sec[i]=a*60+b;

        }
        int dp[d+1][e+1][6];
        for(int i=0;i<=d;i++)
        {
            for(int j=0;j<=e;j++)
            {
                for(int k=0;k<6;k++)
```

```
int dp[d+1][e+1][6];
for(int i=0;i<=d;i++)
{
    for(int j=0;j<=e;j++)
    {
        for(int k=0;k<6;k++)
        {
            if(i==0)
                dp[i][j][k]=0;
            else
                dp[i][j][k]=1000000;
        }
    }
}
 for(int i=1;i<=d;i++)
{
    for(int j=1;j<=e;j++)
    {
        for(int k=1;k<6;k++)
        {
            if(p[k-1]<=j)
            {
                dp[i][j][k]=min(dp[i-1][j-p[k-1]][k]+sec[k-1],dp[i][j][k-1]);
            }
            else dp[i][j][k]=dp[i][j][k-1];
```



```
            else
                dp[i][j][k]=1000000;
            }
        }
    }
    for(int i=1;i<=d;i++)
    {
        for(int j=1;j<=e;j++)
        {
            for(int k=1;k<6;k++)
            {
                if(p[k-1]<=j)
                {
                    dp[i][j][k]=min(dp[i-1][j-p[k-1]][k]+sec[k-1],dp[i][j][k-1]);
                }
                else dp[i][j][k]=dp[i][j][k-1];
            }
        }
    }
    cout<<"#"<<i1<<" "<<dp[d][e][5]/60<<" "<<dp[d][e][5]%60<<endl;
        i1++;
}
}
```

Arista Networks

IIT Jammu

Question 1

CGPA CutOff 8.0, Discipline: Computer Science and Engineering

In an IP network, for every outgoing link, there is a limit to the length of the packet that can be transmitted out of that link. This is known as **Maximum Transmission Unit (MTU)** for a given link. When a packet whose length is greater than MTU has to be transmitted out of such link, the packet needs to be split into smaller units such that the length of each such fragmented packet is less than or equal to the MTU.

Your task is to write the code to gather the fragmented packets and construct one defragmented packet and return a pointer to the defragmented packet.

The rules for fragmentation are follows:

- Every fragmented packet header has a field called FO (Fragment Offset). This indicates the byte sequence number in the original un-fragmented packet that is carried over as the first byte sequence in this fragmented packet.
- Every fragmented packet header has a field called MF (More fragments). A value of 1 here indicates that this is NOT the last fragment.
- Every fragmented packet header has a field called length. This represents the length of the fragmented packet

Description on the expected input and output:

Input:
<NumFragments>
<FragmentedPktHeader1,Payload1>
<FragmentedPktHeader2,Payload2>
<FragmentedPktHeader3,Payload3>
<FragmentedPktHeader4,Payload4>

Note: You don't need to parse the input. The main function will parse the input and pass the fragment to you through recvPkt() function.
The sequence of the fragmented packets need NOT be in the order the packets were fragmented. In other words, the fragments can arrive out-of-order.

Output:
Pointer to the defragmented packet.

Question 2

☆ Candy Crush

This is a one dimensional variant of the popular game Candy Crush. The rules of the game are summarized below.

- You will be given a linked-list where each node stores a candy. Candies are available in different flavors - MANGO, ORANGE, PAAN, COFFEE, CHOCOLATE and MINT
- Each flavor has a "weight" associated with it. For example, MANGO has a weight of 2. This means if there are 2 or more consecutive MANGO flavored candies in the list, they need to be "crushed". Crushing a candy means deleting the node from the linked list. The weights of the flavors are in the table below:

Candy flavor	Weight
MANGO	2
ORANGE	3
PAAN	4
COFFEE	5
CHOCOLATE	5
MINT	6

Example:
If the linked list looks like this -
MANGO MANGO PAAN PAAN ORANGE ORANGE ORANGE ORANGE PAAN PAAN COFFEE
The list should like this after crushing -
COFFEE
Notes:

1. There are two consecutive MANGOes at the head and weight of MANGO is 2. So, the first two mangoes are crushed. The resulting list after this operation is - PAAN PAAN ORANGE ORANGE ORANGE ORANGE PAAN PAAN COFFEE
2. The two PAANs are skipped because the weight of PAAN is 4.
3. Next, there are 4 consecutive ORANGEs, which is >= the weight of ORANGE (3). Hence, all 4 ORANGEs are crushed. The resulting list after this operation is - PAAN PAAN PAAN PAAN COFFEE
4. Now, there are 4 PAANs which are consecutive, so they are crushed next. Weight of PAAN is 4.
5. COFFEE is the only remaining candy.
6. The nodes in the linked list must be processed from head to tail (left to right in above example) and the candies must be crushed in the same order, i.e. crush the candies closer to head before you crush ones further down the list.

INPUT: Length of the linked list followed by candy flavors -
11
MANGO MANGO PAAN PAAN ORANGE ORANGE ORANGE ORANGE PAAN PAAN COFFEE

OUTPUT: The list after crushing the candies -
COFFEE

If the list is empty, the below string is printed -
<empty list>

Length of the input linked list <= 250,000.

YOUR ANSWER

Cargill Business Services India

IITB - Oct 25, 2019

Data Engineer and Software Engineer Profiles were offered.

- Section A - 20 minutes (SWE & DS Profile)
  - Logical Reasoning
    - 10 questions
  - Quant
    - 10 questions
- Section B - 40 minutes (SWE & DS Profile)
  - Platform: Co-cubes
  - Randomly 2 questions chosen from a pool of questions
  - Coding Question 1 - Level - Easy
    - Given an amount as input, give the least number of notes required to give change.
      - Eg: cost 175, notes={100, 50, 20, 10, 5, 2, 1}
      - Answer: 4
      - Explanation: 100+50+20+5
  - Coding Question 2 - Level - Moderate
    - You are given an array, you have to give the maximum sum of subarray chosen such that the elements in the chosen sub-array are not adjacent in the original array
      - Eg: {1, 27, 3, 4, 56, 4}
      - Ans: 83
      - Explanation:
        - 27+56 = 83
        - {27, 56} are not adjacent in the original array
- Section C - 20 minutes (only for Data Science Profile)
  - Python snippets, SQL snippets, Virtualization concept questions

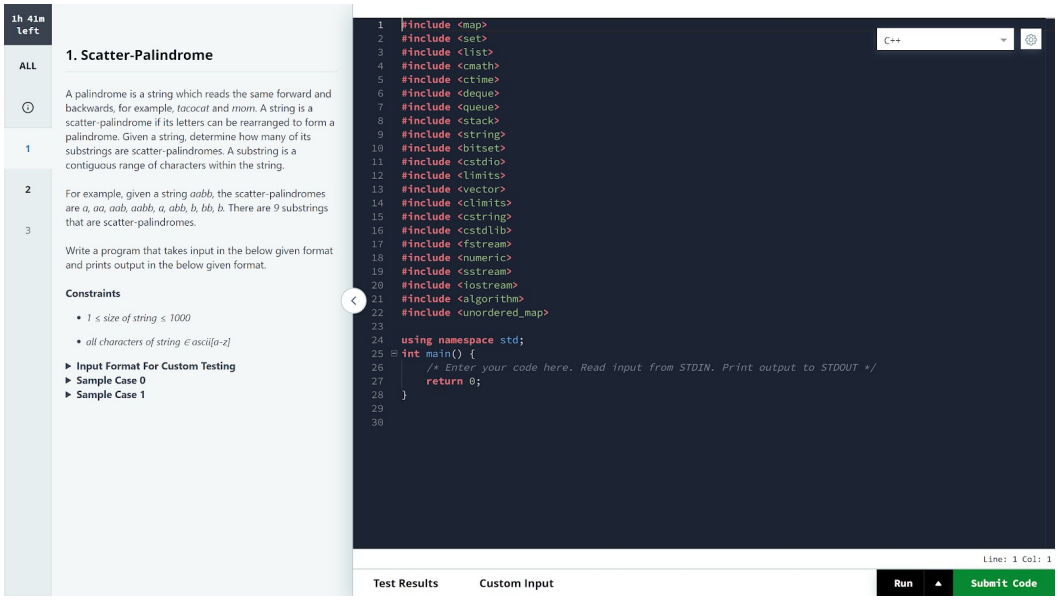
IIT BHU @ 29/09/2019

Hackerrank, STL Allowed, 1 Section, 3 hrs, 3 coding questions. Each question had 15 test cases.

Q1 - Scatter Palindrome : Given a string, find the no. of substrings which can be rearranged into a palindrome.
Brute Force solution accepted. For all possible substrings, check if odd occurring characters are not more than one b/w the start and end index.
Solution Approach explained on StackOverflow

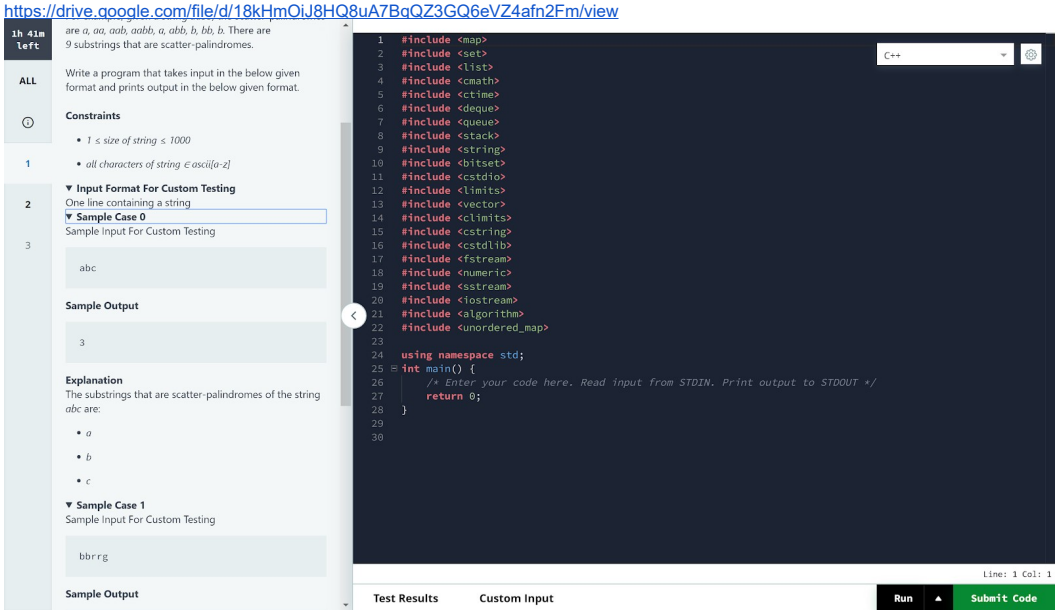
Q2 - Colouring the Blocks : Given n boxes and the costs for colouring each of them with 3 colours (say R,G,B) find minimum total cost to colour all boxes such that no two adjacent boxes of same colour.
DP solution accepted. Populate DP table with minimum possible costs for each choosing a colour till that index. 2^n recursion(bruteforce) also acceptd

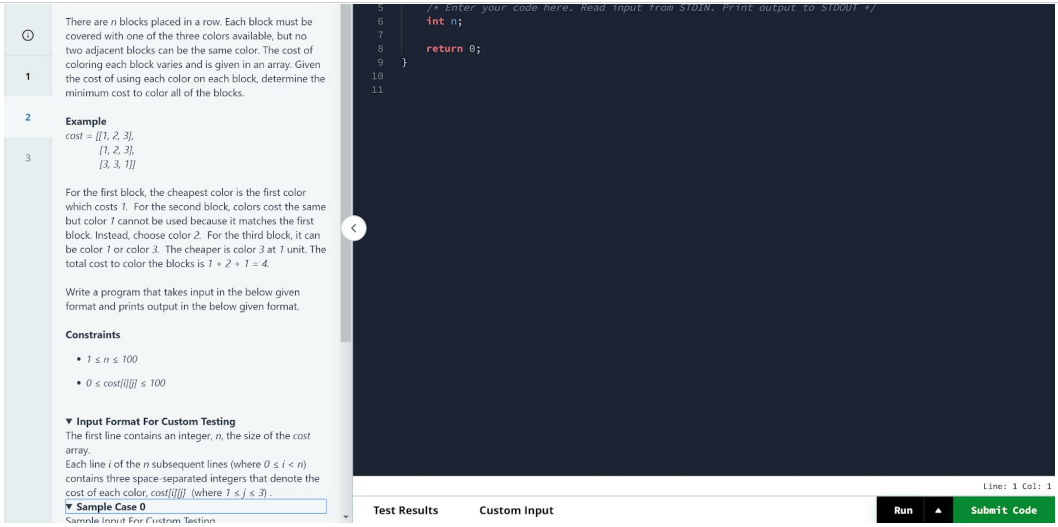
Q3 - Arbitrary Shopping : Find the length of the longest sub-array such that sum of elements does not exceed ‘k’.
Two Pointer solution accepted. For each index, add the element to your current sum, and decrement from beginning index ‘I’ so that the sum fits in ‘k’ units of money.
{ O (n) with sliding window approach} , {O(nlogn) with current sum + binary search} : both worked.



Advice - Don’t worry about complexity, just solve it by bruteforce.

https://drive.google.com/file/d/18kHmOiJ8HQ8uA7BqQZ3GQ6eVZ4afn2Fm/view





There are *n* blocks placed in a row. Each block must be covered with one of the three colors available, but no two adjacent blocks can be the same color. The cost of coloring each block varies and is given in an array. Given the cost of using each color on each block, determine the minimum cost to color all of the blocks.

Example

cost = [[1, 2, 3],
[1, 2, 3],
[3, 3, 1]]

For the first block, the cheapest color is the first color which costs *1*. For the second block, colors cost the same but color *1* cannot be used because it matches the first block. Instead, choose color *2*. For the third block, it can be color *1* or color *3*. The cheaper is color *3* at *1* unit. The total cost to color the blocks is *1 + 2 + 1 = 4*.

Write a program that takes input in the below given format and prints output in the below given format.

Constraints

- *1 ≤ n ≤ 100*
- *0 ≤ cost[i][j] ≤ 100*

▼ Input Format For Custom Testing

The first line contains an integer, *n*, the size of the *cost* array.
Each line *i* of the *n* subsequent lines (where *0 ≤ i < n*) contains three space-separated integers that denote the cost of each color, *cost[i][j]* (where *1 ≤ j ≤ 3*) .

▼ Sample Case 0

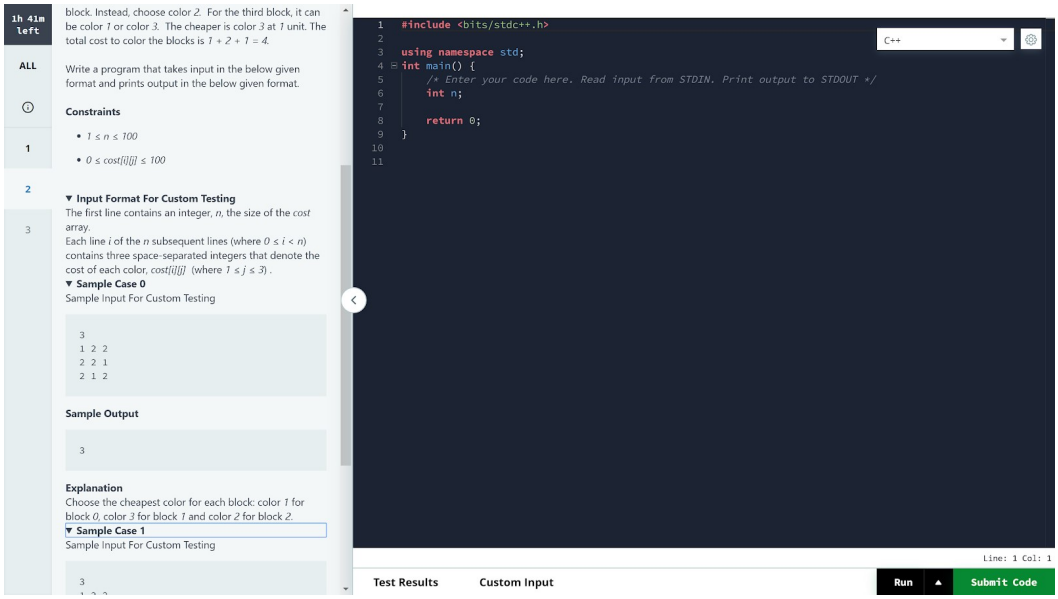
Sample Input For Custom Testing

```
/* Enter your code here. Read input from STDIN. Print output to STDOUT */
int n;

return 0;
}
```

Line: 1 Col: 1

Test Results Custom Input Run Submit Code



1h 41m left

ALL

block. Instead, choose color *2*. For the third block, it can be color *1* or color *3*. The cheaper is color *3* at *1* unit. The total cost to color the blocks is *1 + 2 + 1 = 4*.

Write a program that takes input in the below given format and prints output in the below given format.

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▼ Sample Case 0

Sample Input For Custom Testing

```
3
1 2 2
2 2 1
2 1 2
```

Sample Output

```
3
```

Explanation

Choose the cheapest color for each block: color *1* for block *0*, color *3* for block *1* and color *2* for block *2*.

▼ Sample Case 1

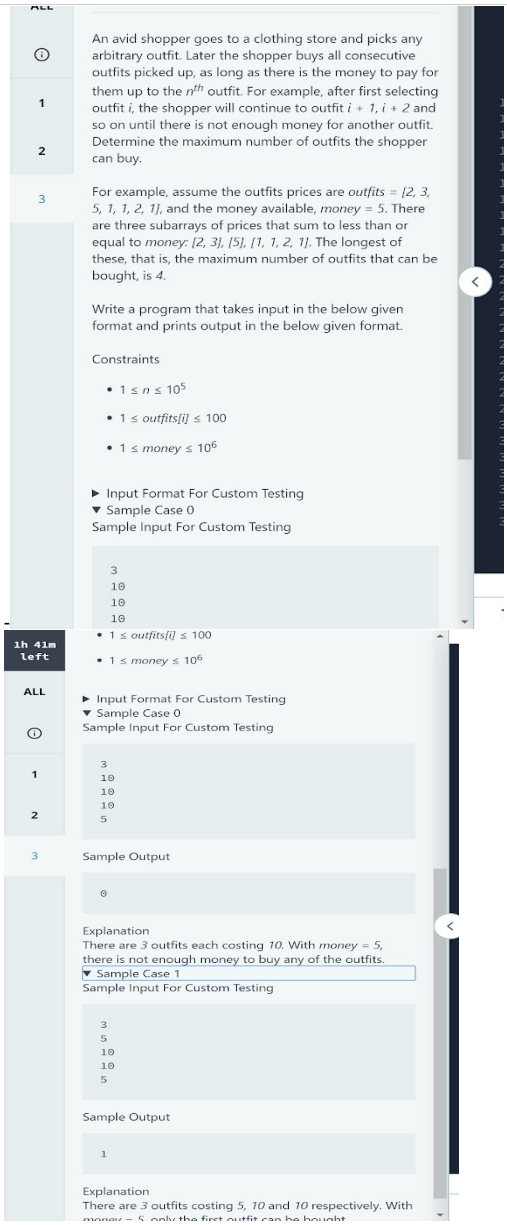
Sample Input For Custom Testing

```
#include <bits/stdc++.h>

using namespace std;
int main() {
    /* Enter your code here. Read input from STDIN. Print output to STDOUT */
    int n;

    return 0;
}
```

C++

Line: 1 Col: 1

Test Results Custom Input Run Submit Code



Hexagon Capability Centre India

IIT Kanpur (30/9/2019) :

Aptitude Test
Total 50 Questions : 50 Min
3 section:
1) Quantitative Aptitude : 20
2) Logical Reasoning and data interpretation: 15
3) Verbal Ability:15
Reference : CAT book + pariksha type question asked

Clumio Technologies India LLP

IIT Kanpur - 3/10/2019

(Member of Technical Staff) (M. Tech allowed)

2 coding questions. Duration: 70 minutes
Platform: Hackerrank

1. Count all substrings of a string such that the substring contains all the vowels and it doesn't contain any character apart from a vowel

One Logical Reasoning section
One Business Analysis Section(Data was given and using it we had to make inferences)
These 3 sections were allotted 60 minutes

One Coding section(60 minutes)

IIT Roorkee - 20/10/2019

2 coding question: Duration 60 mins
Platform: Hackerrank

1. Given N cars placed at some positions on a number line. Find the minimum length of shed such that at least K cars are under it. K <= N <= 1e5
2. Find the maximum size of sub matrix such that all sub matrices of that size have sum less than a given maxSum. N <= 1550
Sol: Binary Search on the size, N^2logN; Please share solution approach

IITG

3 coding question: Duration 1 hr
Mtech open

Questions: https://imgur.com/a/qMMllgr

Deskera

(MTECH CS WAS ALLOWED??) YES

(IIT Kanpur)(03/10/2019)

total of b 18 questions (5 aptitude+5logical+5 technical+3 coding questions) which platform???
hackerrank?? platform was techgig
3 coding question based on string
1.https://www.geeksforgeeks.org/longest-palindrome-substring-set-1/
2.https://www.geeksforgeeks.org/recursively-remove-adjacent-duplicates-given-string/
//what should be the output of mississipie for 2nd question?(because on gfg its quite unclear) mpie
Shouldnt it be mipie??
3.https://www.geeksforgeeks.org/length-of-the-longest-substring-without-repeating-characters/

IIT D (19/10/2019)

Same question as above.

Wells Fargo

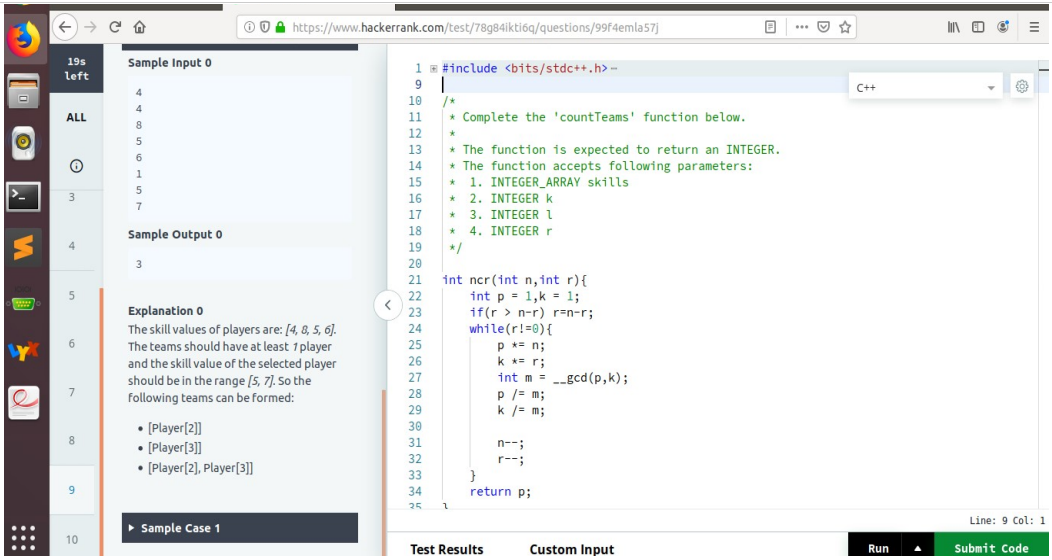
IIT-Madras (3rd October 2019)

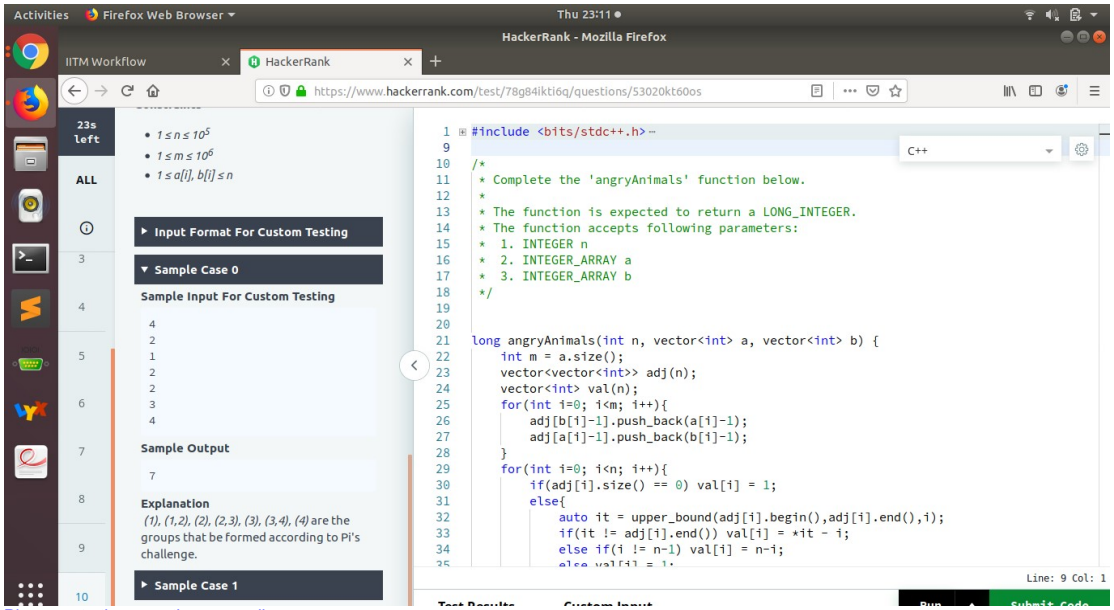
Program Associate Profile: 10 Questions - 8 Aptitude + 2 Coding
Solution to Angry Animals?
Can someone explain the input format for part 2?
Can SOMEONE PLEASE EXPLAIN HOW TO SOLVE ANGRY ANIMALS?? (+3)
Solution Angry Animals
first line is the number of animals. followed by the size of array 'a' then accordingly the number follows.
Then these are followed by the size of array 'b' then the number follows
Check the link below for input format explanation (Complete question for part 2)

Can someone please elaborate what type of aptitude questions were asked
What were the aptitude questions ??? Anyone? Did aptitude contains verbal ability questions?+1,+1,+1,+1
What was the test duration?

Someone earlier deleted the screenshot having angry animals questions. Please refrain yourselves from doing such things.

3





Please put other questions as well

IITG (10th Oct 19)

This was an aptitude test. (120 minutes) Hosted on amcat (what were the level of these questions ???/types???))
One Verbal reasoning section(Comprehension, sentence correction)
2 Questions from a pool of questions(please add more)

- Locate number of substring occurrences in a string(Ex. ***Tim***likestoeatfoodand***tim***lovesgames, Tim) Ans. 2(Exp: occurrences are in bold. Note - the substring is case insensitive)https://www.geeksforgeeks.org/frequency-substring-string/
- Question was reduced to finding length of longest cycle in graph..https://stackoverflow.com/questions/4252215/optimizations-for-longest-path-problem-in-cyclic-graph.Directed or undirected graph??? and what were constraints?

- Given (x,y) coordinates of two circles and their radii, find area of intersection
- https://www.geeksforgeeks.org/find-minimum-number-of-merge-operations-to-make-an-array-palindrome/ instead of count, we had to return the palindrome array

Technical test

Total 57 people were shortlisted from the aptitude test.

7 questions - 1 hour test
You have to write answer along with the complete explanation required for that problem.

First two questions were standard puzzles from interview bit.
Then 2 questions where you have to check for cases and solve equations.

IIT ROORKEE

Was there a similar shortlist after the aptitude test?
Platform: Amcat (shitty platform)
4 sections
Logical reasoning
Verbal & comprehension | 60 min.
Business Analysis -
Coding round :- 60 min 2 ques;
1. :find the value of (S^n%10)^m)%1000000007; https://www.geeksforgeeks.org/modular-exponentiation-power-in-modular-arithmetic/
2: Implement shortest first job scheduling algo.
3. Same as IIT G Question : Locate number of substring occurrences in a string(Ex. ***Tim***likestoeatfoodand***tim***lovesgames, Tim) Ans. 2(Exp: occurrences are in bold. Note - the substring is case insensitive) (::will upload few screenshots also) https://www.geeksforgeeks.org/program-for-shortest-job-first-or-sjf-cpu-scheduling-set-1-non-preemptive/
4. find the largest square palindromic submatrix of a given mxn matrix. a matrix will be palindromic if A[i][i] = A[n+1-i][n+1-i]. i&j are 1 based index. Note: While printing space seperated elements or ans for test cases in seperate line do not print last space or last newline.
Today, I couldn't pass both of my qns due to this :(

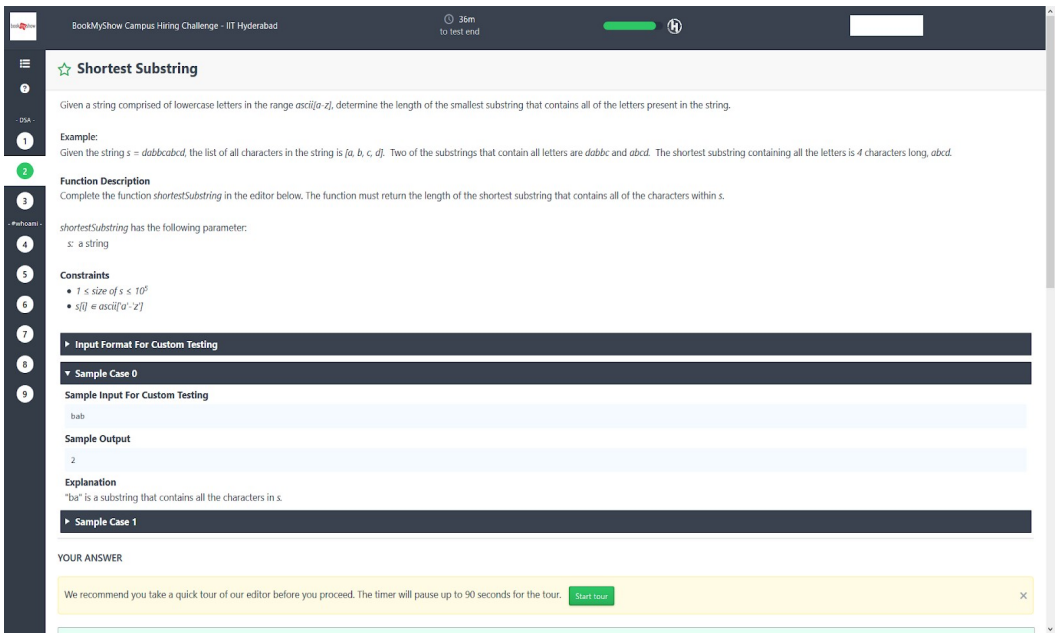
IITK

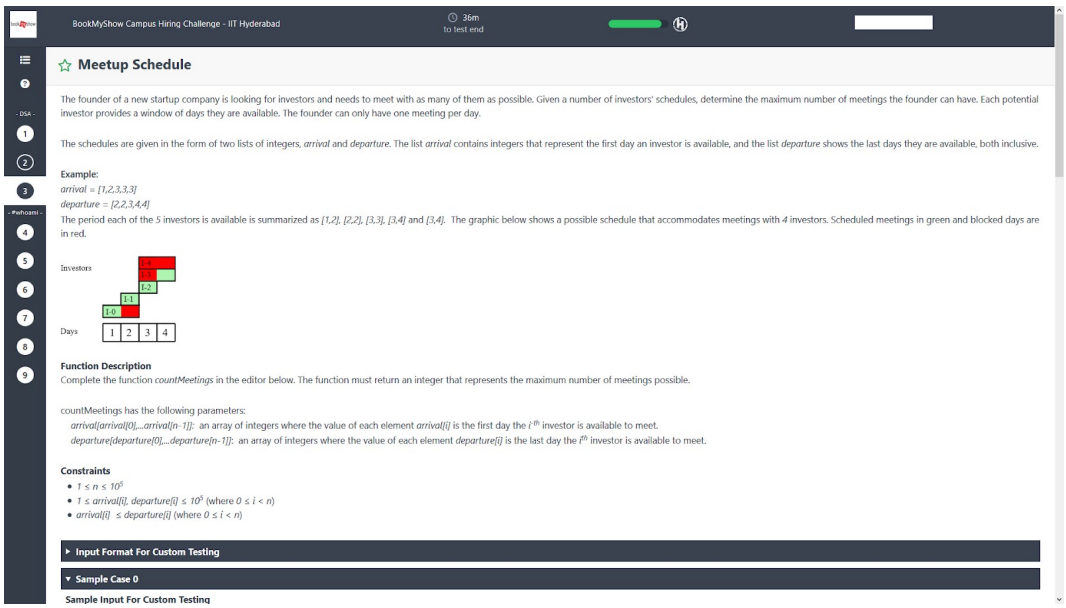
Platform : Hackerrank
4 sections :
Section 1(20 mins) : 4 Quant type questions
Section 2(10 mins) : 3 Logical Reasoning questions
Section 3(30 mins) : 1 coding question
Section 4(45 mins) : 1 coding question

The questions were randomly alloted from a set of questions ie everyone did not have the same set of questions(valid for all the sections)
Coding ques 1(30 mins) : IITM first screenshot (player selection)...Can someone elaborate the question??? In the screenshot, the question isnt visible Skill level of players are given. You are given an upperbound and lowerbound of skill levels and also k which is the minimum number of players required to make a team. you have to find the number of ways to form a team of >=k players whose skills are within the bounds
Coding ques 2(45 mins) : Very big question in terms of explanation. Ad-hoc graph question. Sorry I cannot write it out here since it will take too long and still many of you won't get it. The language was very confusing and many of us did not understand the question correctly during the test.

BookMyShow

IIT Hyderabad





Zendrive

IITG (SDE PROFILE) (salary 20-27 CPI 6.5)

Test was of 1 hour
3 questions

I don't have ss if someone has plz add

Q1. You are given N points on a positive number line. You have to put them in different jars. Each jar can have at most C points and difference b/w any two points in a jar cannot exceed K.
Find minimum number of jars required. **(20 MARKS)**

```
Approach;
func(int a[],int k,int c){
	int n=a.size();
	sort(a,a+n);YO
	in i=0;
	int start=0;
	int d;
	while(i<n){
		start=i;
		d++;
	    while(i<n && A[i]-A[start]<=K && i-start+1<=C){
			i++;
		    }
	  }
	  return d;
}
33
```

Q2:**(50 MARKS)**
You are given an array. You are allowed to square exactly 1 element of array. Find max subarray sum after you square an element.
Approach :
For every index find max subarray sum with subarray starting at that index. Call this array start
For every index find max subarray sum with subarray ending at that index. Call this array end
Note: //if element is negative,set start[i]=0;end[i]=0;
Compute start and end using start[i]=max(0,arr[i]+start[i+1]);
end[i]=max(0,arr[i]+end[i-1]);

```
for(all i){
	val=A[i]*A[i];
	ans=max(ans, val + start[i+1] + end[i-1]);
}
```

This approach can be optimized to O(1) space complexity. However the above solution has no issue.

Q3:**(30 MARKS)**
You are given a 2D grid. each cell contains either a 0 or 1. 0 means the cell is empty 1 means there is a tower on that cell. Each tower has height 1. Find max water you can store in the grid.
Water can be stored in empty cell if they are surrounded by tower on all sides. IF a empty cell is connected to edge of grid then water will flow out

Input
0110
1011
1001
1110

Move along the edge of the grid. IF there is a 0 apply dfs converting all 0's seen to 1.
finally count all 0 in the grid.

Can be solved using bfs too. Convert the edge dots to some other symbol,

IITK

1hr. 3 coding ques. Platform- Hackerearth
Q1. There are a row of n butterflies and k colors.You have to color the butterflies, but you cant color two adjacent butterflies with the same color. There is also a special color(it could be one of the k colors or a different color). There is no coloring restriction while using the special color. You have to output the number of ways mod(1e9+7) of coloring the n butterflies….solution anyone?

Q2. You have an array of size n. The elements of array look like {0,k,2*k,4*k,8*k…} There are Q queries. In each query you will be given a number S. For each query you have to output the largest P<=S such that P is obtained from sum of some of the elements of the array(not necessarily contiguous and each element of the array can be used only once to determine the sum)

Q3.You are given an infinite 2D grid. There are two points on this grid source and dest. From each point in the grid, you can move to any of the 4 adjacent points at a cost of 1 point. There are also N tunnels. The information of start and endpoints of tunnels is given to you. Moving through the tunnel costs you k points(fixed for every tunnel). Output the minimum cost fr gooing from source to dest.

if you remember, please add constraints of the above 3 questions.

IITD

https://imgur.com/a/ZcPuA5P

IITR

https://imgur.com/a/ia0O08c

CITRIX

IIT Guwahati

2 hours test
40 MCQS , 2 coding
MCQs consists of Aptitude,OS,Networks,C++, OOPS
MCQ Questions : https://imgur.com/a/4W8vTeQ

Coding1: https://www.geeksforgeeks.org/sliding-window-maximum-maximum-of-all-subarrays-of-size-k/

Coding 2:https://leetcode.com/problems/special-binary-string/

IIT BHU

HackerRank | STL Allowed | 2 Sections | Total 120m | Section Inter-switching Allowed | All Students Same Questions
Same Format as IIT-G | Around 5 MCQs repeated from IIT-G

Section A : Coding
Q1 - Scatter Palindrome : Given a vector of strings, for each string, find the no. of substrings in it which can be rearranged into a palindrome.
> O(26*n*n*(number of strings in input)) solution accepted for most students.
> Same question appeared in Edgeverve, IIT BHU - Only difference being in Citrix there could be as much as a 100 strings in input.
> Note: map and unordered_map were giving TLE in some cases. Use array to pass all test cases.
> [Weird time limits] 100 queries*1000 word length [100*1000*1000=10^8]
> *Solution Approach* explained on StackOverflow

Q2 - Triple Dijkstra : Calculate minimum distance to be travelled for going from place 1 (first index) to x, then x to y, then y to n (last index).
> Given an undirected graph, and its edges (with weights). A child has to run some errands at two nodes X and Y (in that order), and then reach school. Nodes are numbered from 1 to N. Find the shortest path such that child reaches X, then Y, and finally School. Always starts from node 1, and school is always at node N. X and Y will be greater than 1 and less than N and will be given as parameters. Any node can be visited any number of times.
(Constraint - 10^5)
> Write Djikstra function - d(source_node, dest_node) and call it three times.
> The answer will be d(1, X) + d(X, Y) + d(Y, N)
> Remove all debug codes present or you might get TLE

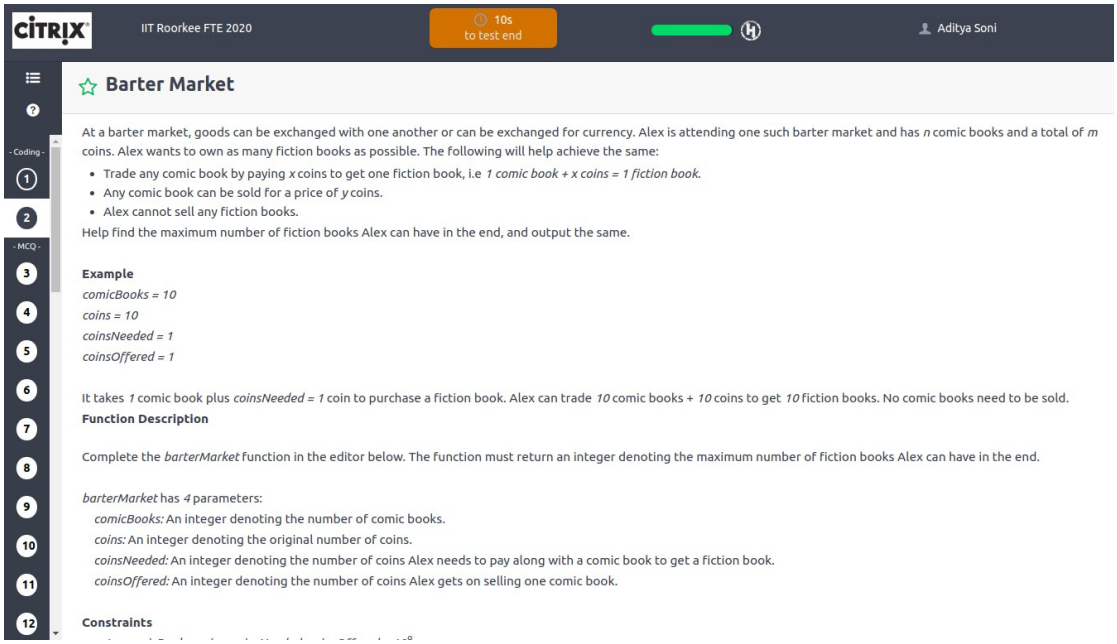
Section B : MCQs
> 40 MCQs
> Around 20 on C++ and C Program Output, OOPS, Syntax [Level: Hard]
> Around 5 on Operating Systems (Process Scheduling and Memory Management mainly) [Level: Easy/Medium]

then debug the same in compiler of Section A and get the output!

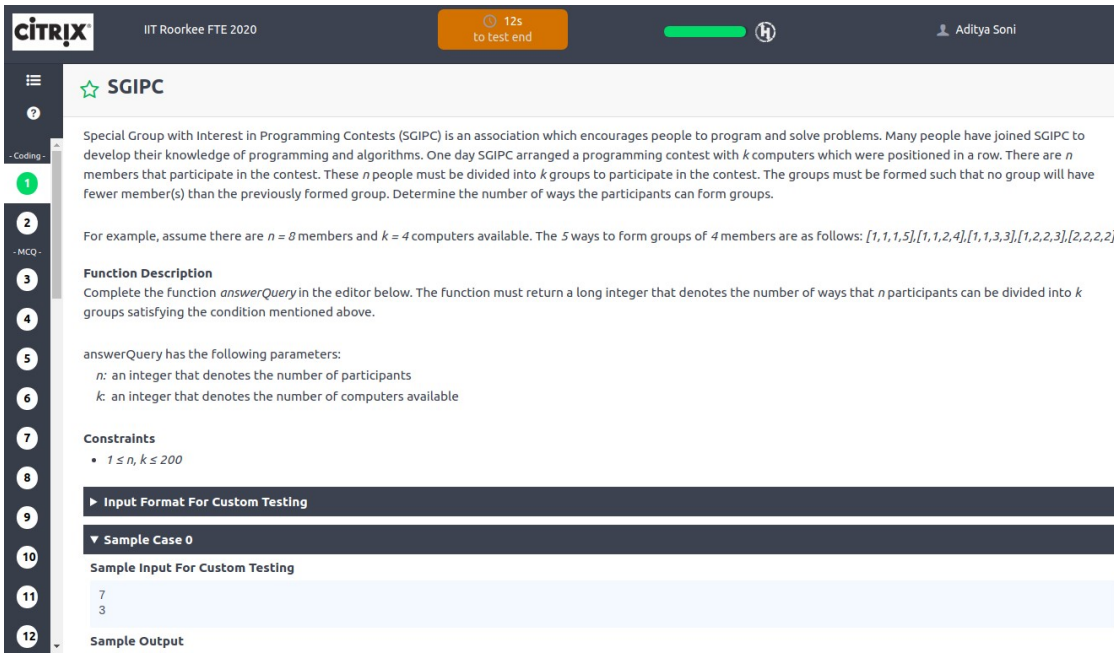
IIT R

Section B:
> 40 MCQs
> similar pattern as above; 3-4 questions were same from IITG

Section A:
Q1: Pappu wants to buy fiction books. He has n comic books and m coins. He can trade 1 comic book and x coins for 1 fiction book i.e. 1 comic book + x coins = 1 fiction book. You will get y coins if you sell 1 comic book. So, given n,m,x,y determine the maximum amount of fiction books pappu can buy. I did this Qn using binary search, some did by making direct formula and some did by bruteforce in O(n) Limits were 10^9



Q2: You have n computers and you want to form k groups such that the all previous groups formed have less computers. You've to determine the number of ways we can form groups. for eg. n=5,k=3 you can form grps in 2 ways {1,1,3} and {1,2,2}. This could be done by dp[i][j][prev] i.e dividing i computers in j grps where previous group has prev computers.



IIT Kanpur

Did they allow C++ ? And the profile they offered was data scientist? Yes, C++ was allowed. The profile was Software Development Engineer.

1 hour, 3 coding questions:
Q1: Given a string S composed of lowercase letters, you are allowed to reverse any substring of S at most once. Find out how many different strings can you generate. Eg. For 'aatt' : one can make 'atat' (reversing S[1]..S[2]), 'ttaa' (reversing whole string), etc.
Q2: Given a string of lowercase letters, output the compressed form of the string. Compressed form of a string 'aaabccdde' is : a3bc2d2e.
Q3: Given a string S of lowercase letters, find out the size of smallest possible substring of S which contains all the distinct letters of S at least once.

Walmart Labs

Was questions same for Data Science profile? +55 No, there were different test links for DS and SE profile

IIT Guwahati

CPI cut-off 6.5 Open for all branches
Was this open to all branches or just circuit branches? Ans. All B.Tech, All M.Tech, All M.Sc, MSR with C.P.I. 6.5 and above
Were there MCQs from OS, DBMS, Networks as well? Ans. No, only the topics mentioned down here.

Link to Questions: https://imgur.com/a/Z7h58m0

There were 23 MCQ questions and **no** coding questions to be done in one hour. Questions were based on

1. Unix commands like cal, command to sort files in decreasing order, etc,
2. Unix VI editor modes
3. Cloud computing questions (based on Amazon cloud (Question-Name architecture in which a single instance of a software application serves multiple customers? Ans. Multi-Tenancy))
4. OOPS questions based on Java(Derived Class,Integer Class,valueOf function), C++, ASP. (Basic)
5. Logical Reasoning Questions & basic maths questions (For example: on the interest rate).
6. Different pseudocodes were given and were asked to tell the algorithm name. (Codes were of Bellman-Ford, Floyd Warshall, Bubble Sort, and Knapsack).

IIT Dhanbad

1. https://www.geeksforgeeks.org/length-smallest-sub-string-consisting-maximum-distinct-characters/
2. The Test was conducted on 14/10/2019. It was an hour-long test which consisted of 10 MCQs and 1 coding question. The MCQs were based on general aptitude, OOPs, one question from cloud computing and one question from networks. Make sure you practice a few questions of masking an IP address.
3. The coding question was: https://www.geeksforgeeks.org/length-smallest-sub-string-consisting-maximum-distinct-characters/

Does any iit except kgp has walmart test tomorrow?

IIT KGP
https://imgur.com/a/Vfv1293 Do we need to use Segment Tree/Fenwick Tree for the coding question ?YES

IIT BHU

Same format as ISM

- MCQs - Kubernetes (1 qstn), Cloud computing (2-3 qstn), Simple and compound interest, Android dev (1 question), Spring Security framework (1 qstn), etc.
- Coding question - Given a binary string find the length of maximum subsequ0ence (NOT substring) which matches the regex 0*1*0*1*
Eg input - 0101000, output - 6 (011000)
Eg input - 0101 output - 4 (0101)
Constraint - Length of string = N < 10^5
For test case 1, Where is 1 in the output ? Shouldn't the output be 01010 because 01000 does not match the regex 0*1*0*1* * can be an empty sequence. Both subsequences are correct and

Correct me If I am wrong, is this question same as Longest Common subsequence Problem ? IDK how it could be related to LCS (not sure), here solution will form a 4*N DP table and the complexity of DP solution will be O(n). We need to maintain 4 states here.
So, the second string for LCS would be 0101. (I mean just remove *s in second string and apply the LCS pattern ? @Rahul Kumar please confirm See my above comment. Idk if your logic of relating it to LCS is correct or not :/

What does regex 0*1*0*1* mean ?Regular Expression (google it)
In 011000, 0 should precede 1 second time according to 0*1*0*1 which is not happening. I am missing something ? Can you explain how 011000 is the answer011000 can be formed with the regex 0*1*0*1* by omitting the last 1. I think you missed the last star after 1.

IIT Kanpur

Profile: Data Scientist
M. Tech Allowed
Time: 1 hour

10 MCQ based on verbal ability and probability
1 program

There is an infinite array. A[0]=0, A[i]=A[i-1] xor i
There are a number of queries having L, R
For each query, find the XOR of the elements between L and R(inclusive)

Constraints: 1 <= L,R <=10^15
1 <= Q <= 10^5

AQR Capital Management

IITG

There were **2 coding questions**, which had to be solved in **75 minutes**. (Level - Easy/Medium)

1st Question - Given list of edges in a graph, you have to keep on storing the maximum size of all the connected components in the graph. So, suppose there are 4 nodes. And edges are [[1,2],[3,4],[2,3]]. You have to return :- 2 2 4. (Can someone explain how did this come as a output)(Explanation: On the first iteration, graph has one edge i.e. 1-2 and so the output is 2. On the second iteration, graph has 2 edges 1-2 and 3-4 (But they are disconnected!), so the largest length of connected component still remains 2 so output is again 2. On the third iteration, graph has 3 edges and becomes 1-2-3-4, so the largest length of connected component becomes 4 now, so output is 4. Hope it helps) Was it a Directed Graph or undirected???Undirected

Solution - Union Find with path compression and a size array will work fine.

Constraints were pretty loose, so I think brute force DFS should even work. I used DFS, it passed all test cases.

2nd question - Given a list of points which basically represent polygons, you have to return all those polygons which are mirror images of each other. Both X-axis and Y-axis act as mirrors.

Solution - Did this using brute force. You have to store the points in a 2D Vector. Then sort all those vectors (A custom compare function needs to be written here), and then keep on comparing.

9/12 test cases passed. I might have missed some corner cases, it was not TLE for sure.
(Please upload any better solution).
Alternate: I created a function for checking if two polygons are mirror image of each other(having two parameters which are the coordinates of the two polygons). After comparing the size of the vectors, push points of a polygon with y-coordinate negated(doing it for checking mirror image w.r.t x-axis, same can be done for y-axis). Then check whether all points of the other polygon are present in the set and it passed all the cases.

WHAT IS the MAXIMUM LENGTH OF LIST??? --- 500 points
Test Platform?? Ans. HirePro: https://www.hirepro.in/

IITH

Q1. Rock Paper Scissor Game///cud u give some link for this?

Example 2 players.
input:
2
R RPS
S SPR
---
finals: 1,2
winner: 1
---
output:
1,2
1

Q2. Given position of knight and queen, find min num of cells travelled to reach queen from knight//were we allowed to move the queen?

NO, you can't move the Queen. NOTE: Here cells travelled is not same as moves made. Consider as no. of cells for a knight to move from position (x,y) to (p,q)

Motorq

Question 1 Max. Marks 100.00

Profit maximization

You are travelling to different villages in a state to make some profit. Villages are numbered 1 to N. In each village, you gain some profit P_i. From a village i, you can only move to a village j if and only if $i < j$ and the profit gain from village j is **a multiple of** the profit gain from village i.
You are required to determine the **maximum profit** you can gain while travelling. You could start at any of the villages.

Input format

- First line: A single integer N denoting the total number of villages
- Second line: N space-separated integers, each denoting the profit gain P_i from village i

Output format
Print the maximum profit you can gain.

Constraints
$1 \leq N \leq 10^3$
$0 \leq P_i \leq 10^5$

Sample Input

```
6
1 2 3 4 9 8
```

Sample Output

```
15
```

Explanation

The maximum profit **15** can be achieved by going to villages **(1, 2, 4, 6)** with profit gain **(1, 2, 4, 8)**.

Note: Your code should be able to convert the sample input into the sample output. However, this is not enough to pass the challenge, because the multiple test cases. Therefore, your code must solve this problem statement.

Substrings and Distinct Characters

You are given a substring S of lowercase English alphabets. Let X_i be the number of substrings of S having at least i $(1 \leq i \leq 26)$ distinct characters. Find X_i for all i $(1 \leq i \leq 26)$.

Input format

For each test case

- First line: An integer N representing the length of the string S.
- Second line: String S

Output format

Your output should contain a single line containing 26 space-separated integers. The i^{th} integer is the number of substrings of S having atleast i distinct characters.

Constraints

$$1 \leq N \leq 5 * 10^5$$

Sample Input	Sample Output
3 abc	6 3 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

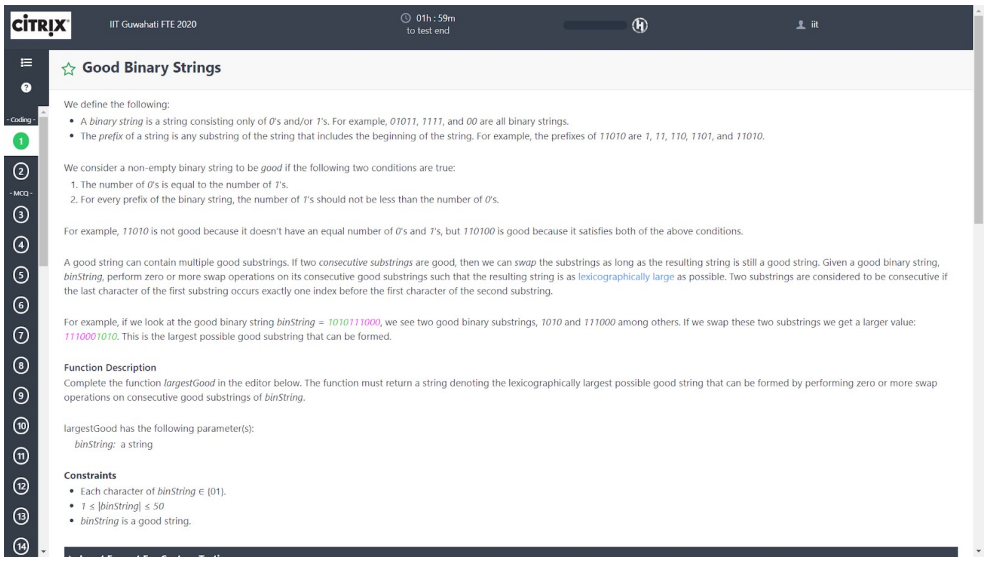
Explanation

Subarrays with atleast **1** distinct characters: ***{a, b, c, ab, bc, abc} = 6***

Subarrays with atleast **2** distinct characters: ***{ab, bc, abc} = 3***

Subarrays with atleast **3** distinct characters: ***{abc} = 1***

Rest all of them are 0 since the entire string contains only 3 distinct characters.



Can someone share the solution or approach for question 2 substring and distinct characters above?

Any pseudo code??
https://ideone.com/RPufqK
basically in above code I calculated for len = 1 to 26 distinct characters number of substrings possible, and to calculate the number of substrings in O(n) I used the approach mentioned in this link solution leetcode, so overall complexity is O(n).

Cogoport

CPI cutoff: 7.5

Which branches it was open for?

IITK

The test consisted of 3 sections

1. **Behavioral:** This test was without any time limit. In the first page, we had to select those behaviour which people expect from us. Eg cleanliness, punctuality. In the next page, we had to select those behaviour which defines us. We cannot go to the first page while answering the second page.
2. **Logical reasoning and aptitude:** Duration: 12min. This test consisted of 50 questions of logical reasoning, patterns, aptitude. We had to answer quickly within 12 minutes and there were only a few questions from quantitative aptitude so it was better to leave them.
3. **Programming:** Duration: 2 hours. Platform: Hackerearth.
    - Question 1: Given an array of size N and Q queries, where each query consists of two integers L and R, representing left and right indices in the array, tell whether all the integers present within these two ranges are present even number of times or not. Brute force will not work here
      For each prefix if we store XOR , then by checking if prefix XOR is 0 or not gives the answer. But what if array contain 0??.
      Hi there, for the case of zero you can make a similar prefix array of number of zeroes then counting the number of zeroes in a range is trivial.
      -> The solution with xor is incorrect as it is possible for 3 numbers to have xor = 0 e.g. 1^2^3 = 0. no xor wil work
      Will segment tree work?? This can be solved by MO's algorithm

      I DON'T THINK YOU NEED TO IMPLEMENT MO'S algo .....PREFIX METHOD IS SUFFICIENT TO PASS THE TEST CASES.
      https://www.geeksforgeeks.org/queries-to-check-whether-all-the-elements-in-the-given-index-range-occur-even-number-of-times/
      The above link has the same error - 1^2^3 = 0. How will you take care of this?
      Can anyone who solved all test cases confirm if XOR solution was working??

    - Question 2:Given an array of size N and Q queries, where each query consists of three integers L and R and K, return the K-step sum within the range L and R. For example for the array [1, 2, 3, 4, 5, 6, 7], if a query is L=2, R=6 and K=2, then the numbers 1, 3, 5, 7 are a part of the 2 step sequence and among these, only 3 and 5 lie within the range(array indexing starting from 1). So the required sum = 8.
      SOL: MAKE A MATRIX(N*N) WITH A PREFIX SUM OF CORRESPONDING ROW WITH K JUMPS. SO FOR A GIVEN QUERY "K" = THAT WILL BE YOUR ROW AND JUST TAKE (prefix[k][R] - prefix[k][L-1]).
      E.G. K=2 prefix[2] = 1 1 4 4 9 9 16 || ANS = (9-1) = 8
      IITH - ALL THE BEST

Please provide constraints for n,q and k for both problems??+1

IITM

Different people had different questions. I wanted to share a question that i got in programming test. Another question i didn't give a try.

Question: Given a string S, find the longest palindromic prefix substring. 1<= len(S) <=100000
Input1: ababa
Output 1: 1 1 3 3 5
Explanation 1:
prefix = a || max palindrome length=1 || palindromic string=a
prefix = ab || max palindrome length=1 || palindromic string=a or b
prefix = aba || max palindrome length=3 || palindromic string=aba
prefix = abab || max palindrome length=3 || palindromic string=aba
prefix = ababa || max palindrome length=5 || palindromic string=ababa

Input2: aaba
Output2: 1 2 2 3
Explanation2:
prefix = a || max palindrome length=1 || palindromic string=a
prefix = aa || max palindrome length=2 || palindromic string=aa
prefix = aab || max palindrome length=2 || palindromic string=aa
prefix = aaba || max palindrome length=3 || palindromic string=aba

Brute force O(N^3) will fail !!!
O(N^3) Solution:

```
#include <iostream>
#include<bits/stdc++.h>
using namespace std;
int pal(string s){
   string t=s;reverse(t.begin(),t.end());
   if(s==t) return 1;
   return 0;
}

int main() {
      //code
      string s="asabbasarr";
      map<int,int> m;
      vector<int> res(s.length(),0);
      for(int i=0;i<s.length()-1;i++){
         string temp="";temp+=s[i];
         for (int j=i+1;j<s.length();j++){
            temp+=s[j];
            if(pal(temp)) {
            if(m.find(j)!=m.end()){ if(temp.length()>m[j]) m[j]=temp.length();}
            else m[j]=temp.length();
            }
         }
      }
      int mx=1;
      for(int i=0;i<s.length();i++){
         if(m.find(i) !=m.end() && m[i]>mx) res[i]=m[i];
         else res[i]=mx;
         if(mx<res[i])mx=res[i];
      }
      for(auto it:res) cout<<it<<" ";cout<<endl;
      return 0;
}
```

Output:1 1 3 3 3 4

IITH

(cg 7.5 , allowed all branches)

Test was conducted on hackerearth. Everyone got different set of questions

1) Given an array A(A[i]<10^9) of size N(<10^5) and Q range queries(<10^5).

x L R (array values are to be manipulated based on x and within range L and R).

can you specify the manipulation

2) Given integer array of length N, which contains values between 1 to M, and Q range queries. for each query [L,R], output element which occurs more than (R-L+1)/2 times in range A[L...R] if such element exist.
1 <= N <= 3*10^5
1 <= M <= 10^5
1 <= Q <= 10^5

3) Given an array of N integers, you choose elements one by one from array (choose in any order, each elem can be chosen at max once)
You need to achieve target T.

Constrain: After selecting some numbers suppose you have currently value P, and next chosen element is X.
new Value will be P - floor(P/100) + X

Find minimum steps, required to achieve target T.
1 <= N <= 10^5
1 <= T <= 10^5

4)

Unspecified words

There are ***N*** words in a dictionary such that each word has a length ***M*** and consists only of lowercase English letters, i.e. ('*a*', '*b*' ... '*z*'). There are ***Q*** queries in which you are given a query word of length ***M*** with some unspecified letters represented by the symbol '?' .

Write a program to count the number of words in the dictionary which have the same letters in all the specified positions.

Input format

- First line: Two space separated integers ***N*** and ***M***
- Next ***N*** lines: One word
- Next line: ***Q***
- Next ***Q*** lines: Query word

Output format

For each query, print the number of words in the dictionary which have the same letters in all the specified positions.

Constraints

$1 \leq N \leq 5 * 10^4$
$1 \leq M \leq 7$
$1 \leq Q \leq 10^5$

5)

You are given two numbers N and X. You have Q queries, and for each query you have to find that if the Subsequence of *N* exists or not, such that when the number formed by concatenating the subsequence is divided by *K*, it leaves the remainder as *X*.

Input format

- First line contains *N* , *K* and *Q*
- Next *Q* lines contains the value *X*

Output format

For each Query, Print **"YES"**(without quotes) if subsequence exists which leaves the remainder as *X* when divided by *K* otherwise **"NO"** (without quotes) in a new line.

Constraints

$1 \leq N \leq 10^{10000}$

$1 \leq Q \leq 10^{6}$

$2 \leq K \leq 100$

$0 \leq X \leq K-1$

Sample Input **Sample Output**

IIT R

Test was conducted on hackerearth. Everyone got different set of questions

Question 1 Max. Marks 100.00

Prime Coins

You have 10^5 bags enumerated from *1* to 10^5. All bags are initially empty. You have to perform *Q* operations. Each operation is of one of the following types:

- **Type 1**: You are given a number *X*. You have to find all the prime factors of *X* and add *1* coin to all the prime factor numbered bags.
- **Type 2**: You are given two integers *L* and *R*. You need to answer the number of coins you have in bags numbered from *L* to *R*.

Input Format
First line of the input contains a single integer *Q* denoting the number of operations.
Then, *Q* lines follow where each line is an operation of either Type *1* or Type *2*.

- $Type1$ query have two space separated integers *1*, *X*.
- $Type2$ query have three space separated integers *2*, *L*, *R*.

Output Format
Print answer for every **type 2** query in a separate line.

Constraints

- $1 \leq Q, X \leq 10^5$
- $1 \leq L \leq R \leq 10^5$

Substrings v/s distinct substrings

The following parameters are defined for a string S of length L:

1. **TDS** - The sum of the number of distinct characters in all the distinct substrings of S
2. **TS** - The sum of the number of distinct characters in all the substrings of S

Write a program to find the absolute difference between **TDS** and **TS**.

Input format

- First line: S

Output format

Print the absolute difference between **TDS** and **TS**.

Constraints

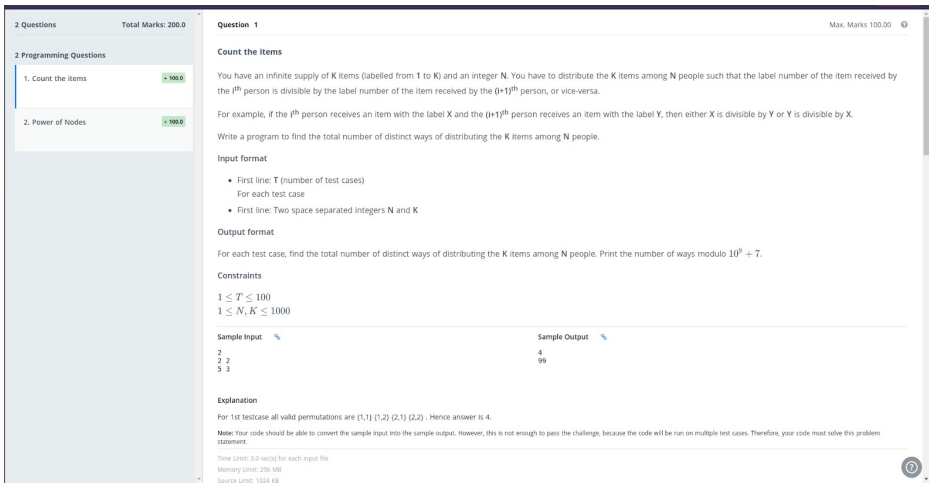
$1 \leq L \leq 500000$

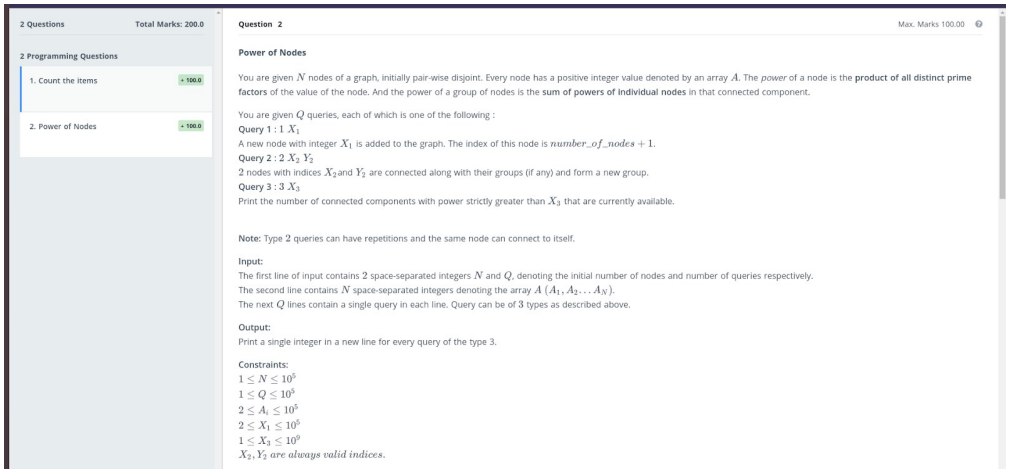
Sample Input	Sample Output
aabb	2

Explanation

Set of all sub-strings of "aabb" = {a,a,b,b,aa,ab,bb,aab,abb,aabb}
TS = 1 + 1 + 1 + 1 + 1 + 2 + 1 + 2 + 2 + 2 = 14

Set of distinct sub-strings of "aabb" = {a,b,aa,ab,bb,aab,abb,aabb}
TDS = 1 + 1 + 1 + 2 + 1 + 2 + 2 + 2 = 12





Do we have to use Segment Tree for Prime Coins questions. I got this question in an Internship exam and using the Sieve of Eratosthenes gave me TLE. So, please confirm.
Yes Sieve + Segment Tree is the probable solution.

IITG

Same pattern as above.
My questions: https://imgur.com/a/qdhOquX

NetApp

IIT Guwahati

3 coding question in 45 min.(M.Tech CSE,EE,ECE ONLY)
30 MCQs in 30 min.

Coding:

1. Given a number represented in binary as a string(length <=100). Return 1 if divisible by 6 else return 0.
2. Given infinite coins, and 3 pockets, we have to put the coins in 3 pockets, such that the sum of all coins is in the range [X,Y] inclusive. Find number of ways to put the coins. Input will be range X,Y
   Input: [4,5] [X=4, Y=5]
   Output: 9 (3+6)
   total coins = 4. Number of ways = 3
   {1,1,2} {1,2,1} {2,1,1}
   total coins = 5. No of ways = 6
   {1,1,3} {1,3,1} {3,1,1} {1,2,2} {2,1,2} {2,2,1}
3. https://www.geeksforgeeks.org/connect-n-ropes-minimum-cost/

MCQ topics: OS, Network, Aptitude, CPP output
//Please add MCQ questions if possible.

For question 1, if the last bit is 0, the number is divisible by 2, if the number of non-zero bits in even positions - naumber of bits in odd positions is a multiple of 3, the number is a multiple of 3. Refer here: https://web.archive.org/web/20171029092543/http://www.answermysearches.com/how-to-tell-if-a-binary-number-is-divisible-by-three/70/

If the above two conditions are satisfied, the number is divisible by 6.

Solution for 2nd Question:- (Please correct if wrong)(what's the approach of choosing p and temp?, I hope it's clear now)

```
int main()
{
	int x,y;
	cin>>x>>y;
	long ans=0;
	for(int i=x;i<=y;i++)
	{
		int p=i-1;
		ans += p*(p-1)/2;
		// cout<<temp<< " ";
		ans+=temp;
	}
	cout<<ans<<endl;
	return 0;

}
```

// I think we have to sum up nC2 for all n from X-1 to Y-1 (Stars and Bars approach). If we solve this, for every n, we need to add to our ans n*(n-1)/2. //I have updated above. Now, it should be easily understandable.

IIT BHU

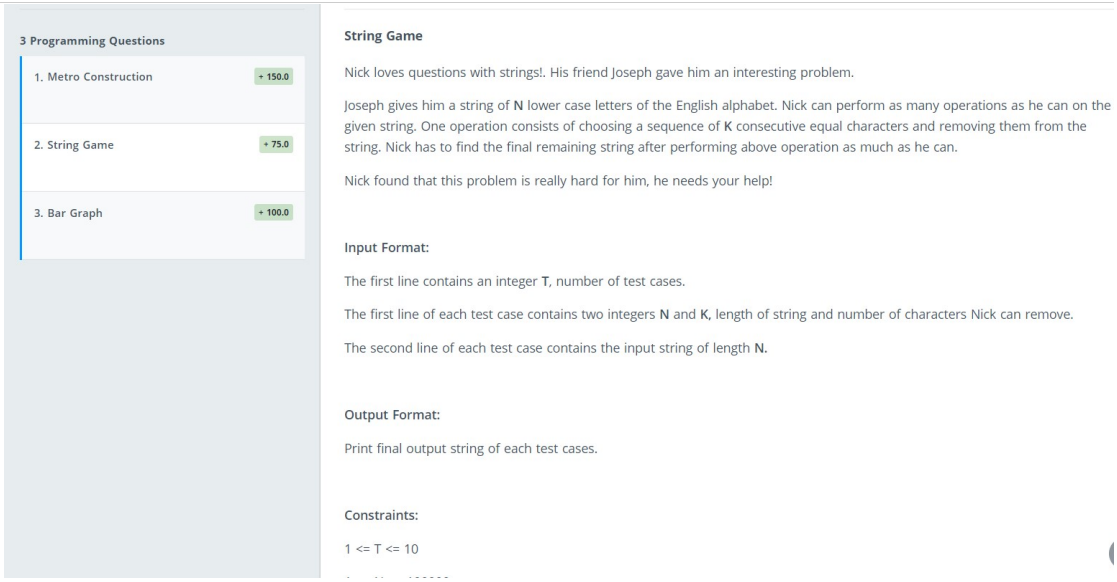
Exactly same as IITG. 2nd coding question didn't pass all cases using the code mentioned above. After 30 mins or so, the platform lost its shit and we were not able to see which test cases it passed (our code was getting submitted but not evaluated on test cases), so it was not clear why it didn't pass all test cases.

Sprinklr

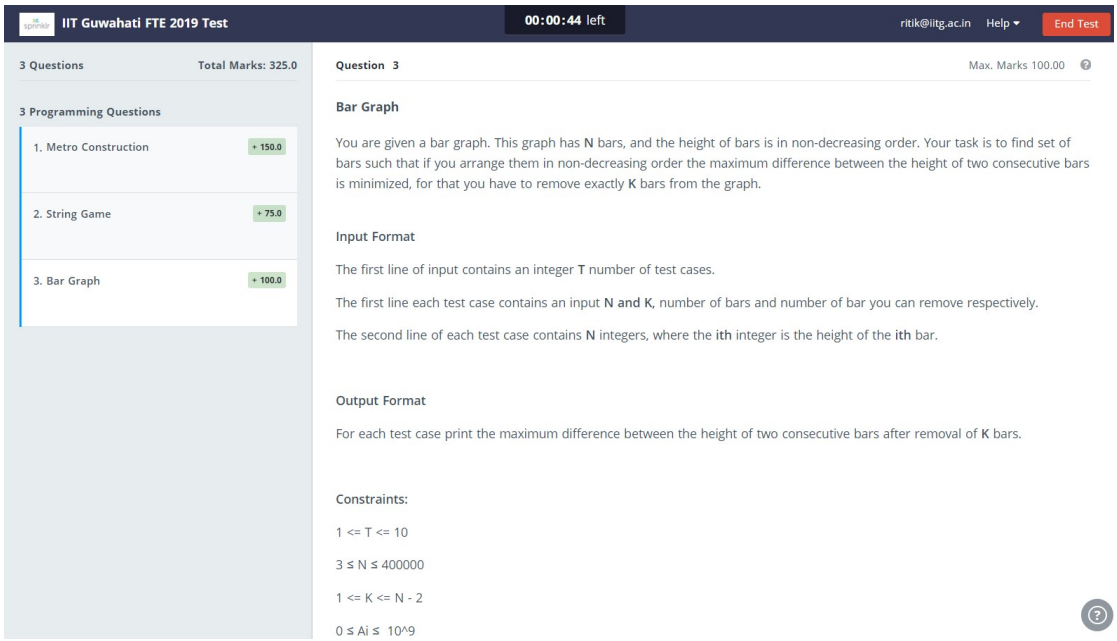
IITG

3 coding questions, 90 minutes
Total marks: 325(150 + 75 + 100)

Q 2.[75 pts]



65 points were being given for the brute force. Could be done easily using stack.
Q 3.[100 pts]



Approach: Only remove bars from the end points. Create another array for storing the differences between consecutive
elements(will be of size n-1). Now the p
could this be done by greedily removing bar from both ends which has higher difference with its consecutive element????

(Use deque with window size of n-k
i.e the number of bars to keep)

Q1.[150 pts] Question boiled down to that a graph is given, where value at each node is number of nodes that are reachable from it. We have to remove exactly 3 edges such that total sum of values of all nodes is maximized. Print the maximum score possible.
Are we given an array denoting the number of nodes reachable from that node? That's it? edges were not given?
We were given graph in form of edges as pair of vertices.
Constraints n<=100000; no. of vertices
m<=100000; no. of edges
Was graph directed or undirected ?
Directed or else all the nodes will be reachable from every other node.
Can anyone plz share the approach?? Not getting any idea+1
Was it mentioned that the graph doesn't contain any loops or cycles?
Was anyone able to solve it?
was O(n square) time complexity working?
The graph must be undirected or the problem is unsolvable. Verified from icpc world finalists. (??)
How to solve even it it undirected?
Can be solved using dfs in O(n) plz explain how

IITD

12th october

https://owncloud.iitd.ac.in/nextcloud/index.php/s/sN36Q9k5iEEEEA2

IIT D the rar file is corrupt Extract using Rar5 Format
Code for bar graph question: https://gist.github.com/chrchllkhangar1/20b8247e7af116de66f546487982a423

3 coding questions, 90 minutes
2 questions "string game" and "bar graph" exactly same as from IITG (refer main doc)
3rd question:

Q3(150 marks)- You are given an array (length <= 10^5) of 0's and 1's. Is it possible to split array into 3 parts such that decimal value of all 3 parts is same? If possible, return the decimal value else return -1. Solution - Count number of 1s. If 0, return 0. If not divisible by 3, return -1. Else divide by 3 and find the value: if you iterate from the back of given array, you can figure out the number of trailing zeros in the last split, say tz. Now you know the required number of 1s in each split and the number of trailing zeros as soon as you hit the last 1 of any split while scanning from left to right. Store the splits in vectors and remove leading zeros and compare - v1 != v2 or v2 != v3 then return -1. Else you already have the vector and you can report the desired value.
(please add the code if possible)

IITK

Same as IITR

IITKGP

Platform: hackerearth
Time: 1:30 hr
No tab switch allowed

3 Programming Questions

1. Interesting Prime + 100.0
2. Find Primes + 100.0
3. Weekend planning + 150.0

Interesting Prime

A **prime number** is a number greater than 1 whose only factors are 1 and itself.

An interesting prime number is a prime number which can be written as $a^2 + b^4$ where **a** and **b** are positive integers The smallest interesting prime is 2 = 1^2 + 1^4. You will be given **N** a positive integer, you have to find the number of interesting primes less than or equal to **N**.

Input Format

The first line of input contains a single integer **T** denoting the number of test cases. Then **T** test cases follow. The first and only line of each test case consists of **N**.

Constraints

$1 <= T <= 2*10^5$
$1 <= N <= 10^6$

Output Format

Each line contains a number of Interesting primes less than or equal to **N**.

Sample Input	Sample Output
4 3 10 100 1000	1 2 6 28

IIT KGP Full Time 2019 Test 00:02:48 left Help End T

3 Questions Total Marks: 350.0

3 Programming Questions

1. Interesting Prime + 100.0
2. Find Primes + 100.0
3. Weekend planning + 150.0

Question 2 Max. Marks 100.00

Find Primes

A **prime number** is a number greater than 1 whose only factors are 1 and itself.

Consider positive integers x, x+1, ...y. find the minimum integer k (1 <= k <= y - x + 1) such that for any integer z (x <= z <= y - k + 1) among k integers z, z+1,...,z+k-1 there are at least p prime numbers.

Find and print the required minimum integer k. If there is not an integer k that meets the described limitations, print -1.

Input Format:

The first line of input contains T, the number of test cases.
For each test case, there is a single line containing three space-separated integers x, y, p.

Output Format:

For each test case, print a single integer — the required minimum k. If there's no solution, print -1.

Constraints:

$1 <= x,y,p <= 10^6$
$x <= y$

Sample Input	Sample Output

3 Programming Questions

1. Interesting Prime + 100.0
2. Find Primes + 100.0
3. Weekend planning + 150.0

The first line of input contains T, the number of test cases.
For each test case, there is a single line containing three space-separated integers x, y, p.

Output Format:

For each test case, print a single integer — the required minimum k. If there's no solution, print -1.

Constraints:

$1 <= x,y,p <= 10^6$
$x <= y$

Sample Input	Sample Output
2 2 4 2 1 4 3	3 -1

Note: Your code should be able to convert the sample input into the sample output. However, this is not enough to pass the challenge, because the code will be run on multiple test cases. Therefore, your code must solve this problem statement.

Time Limit: 1.0 sec(s) for each input file
Memory Limit: 256 MB
Source Limit: 1024 KB
Marking Scheme: Marks are awarded if any testcase passes
Allowed Languages: Bash, C, C++, C++14, Clojure, C#, D, Erlang, F#, Go, Groovy, Haskell, Java, Java 8, JavaScript(Rhino), JavaScript(Node.js), Julia, Kotlin, Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, PHP, Python, Python 3, R(RScript), Racket, Ruby, Rust, Scala, Swift, Swift-4.1, TypeScript, Visual Basic

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3 Questions Total Marks: 350.0

3 Programming Questions

1. Interesting Prime + 100.0
2. Find Primes + 100.0
3. Weekend planning + 150.0

Question 3 Max. Marks 150.00

Weekend planning

You are given road network, with N cities and M bi-directional roads. Each road has some positive amount of tax associated to it, meaning if there is a road connecting cities A and B with tax C, you will need to pay C rupees to the government every time when you use this road.

but you have a wildcard which can be used at-most K times and when you use wildcard while using a road, you do not need to pay tax associated to road.

You are planning to visit one city this weekend, due to limited budget you want to estimate minimum possible cost from the your home-city to every other city, so that you can choose the destination according to the budget. your home-city is a city numbered with 1.

Input format:

First line of the input contains N, M and K. following M lines contains 3 integers U V C, meaning there is road between cities U and V with tax C associated.

Output fomat:

print N space separated integers in a single line, ith integer indicating the minimum cost of travelling from city 1 to i.

Sample Input	Sample Output
4 4 1 1 2 2 2 3 3	0 0 0 5

3 Programming Questions

1. Interesting Prime + 100.0
2. Find Primes + 100.0
3. Weekend planning + 150.0

associated to it, meaning if there is a road connecting cities A and B with tax C, you will need to pay C rupees to the government every time when you use this road.

but you have a wildcard which can be used at-most K times and when you use wildcard while using a road, you do not need to pay tax associated to road.

You are planning to visit one city this weekend, due to limited budget you want to estimate minimum possible cost from the your home-city to every other city, so that you can choose the destination according to the budget. your home-city is a city numbered with 1.

Input format:

First line of the input contains N, M and K. following M lines contains 3 integers U V C, meaning there is road between cities U and V with tax C associated.

Output fomat:

print N space separated integers in a single line, ith integer indicating the minimum cost of travelling from city 1 to i.

Sample Input	Sample Output
4 4 1 1 2 2 2 3 3 1 3 6 3 4 11	0 0 0 5

Note: Your code should be able to convert the sample input into the sample output. However, this is not enough to pass the challenge, because the code will be run on multiple test cases. Therefore, your code must solve this problem statement.

IIT Roorkee

IIT Roorkee FTE 2019 Test 00:04:02 left pverma@ch.iitr.ac.in Help

3 Questions Total Marks: 325.0

3 Programming Questions

1. Interesting Arrangement + 150.0
2. Minimize Summation + 75.0
3. Interesting Prime + 100.0

Question 2 Max. Marks 75.00

Minimize Summation

Given **n** numbers A_1, A_2,...An, choose exactly **k** integers B_1, B_2,...B_k from these **n** numbers such that the value of **X** below is minimal:

$$x = \sum_{i=1}^{i=k} \sum_{j=1}^{j=k} (B_i - Bj)^2$$

Find and print the minimal value of **X**.

Input Format:

The first line contains two space-separated integers describing the respective values of **n** and **k**.
The second line contains **n** space-separated integers describing the respective values of A_1, A_2,...An.

Output Format:

Print the minimal value of **X** on a new line.

Constraints:

$1 <= n, k <= 10^5$
$0 <= A_i <= 10^3$

Sample Input	Sample Output
4 2 2 0 9 5	8

3 Questions Total Marks: 325.0

3 Programming Questions

1. Interesting Arrangement + 150.0
2. Minimize Summation + 75.0
3. Interesting Prime + 100.0

Output Format:

For each test case print number of possible binary strings modulo (10^9 + 7).

Constraints:

1 <= T <= 100000

1 <= N, B, K <= 200000

Sample Input	Sample Output
1 5 3 2	6

Explanation

Given sample test case following are possible arrangements:

BBGBG
BBGGB
BGBBG
BGGBB
GBGBB
GBBGB

where, B is for boy and G is for girl.

Note: Your code should be able to convert the sample input into the sample output. However, this is not enough to pass the challenge, because the code

IIT Roorkee FTE 2019 Test 00:03:59 left pverma@ch.iitr.ac.in Help End T

3 Questions Total Marks: 325.0

3 Programming Questions

1. Interesting Arrangement + 150.0
2. Minimize Summation + 75.0
3. Interesting Prime + 100.0

Question 1 Max. Marks 150.00

Interesting Arrangement

Nick and Joseph love solving math problems. They give each other interesting problems to solve.

One day Nick gives Joseph a three numbers **N**, **B**, and **K** and ask him to find a number of possible arrangement of total **N** people in one line out of which there are **B** boys. In this arrangement, all boys should be arranged in exactly **K** groups means no girl can be between any two boys in any of the **K** groups. He can make a group of any size. No two boy groups can be next to each other.

All boys are identical and all girls are identical.

Joseph found that the problem is hard for him, help him to solve this problem.

Input Format:

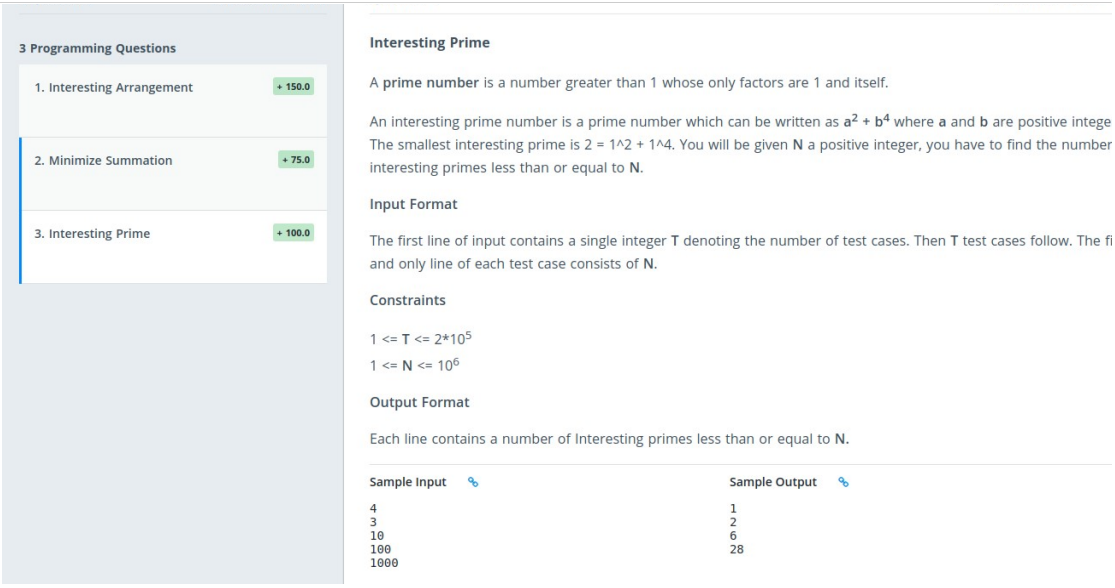
The first line of input contains a number of test cases **T**.

The next **T** lines contain three integers **N**, **B**, and **K**.

Output Format:

For each test case print number of possible binary strings modulo (10^9 + 7).

Constraints:



IIT-Bombay

31-10-2019
Same as IIT-G

IIT BHU

150 marks - weekend planning
100 marks - median in a stream of numbers. For each added number, find the new median.
100 marks - given an array of integers, we can choose any one element and replace it with its square. Find the maximum subarray sum possible.
Eg - [2, -4, 9] ..... We can replace -4 with 16 to get the max subarray sum {2,16, 9} = 27

Axis Bank

IITG

1. CV shortlisting (selected 100 candidates for test)
2. Aptitude Test - 4 assessment on shl site-
i) Round 1 - Verbal reasoning- English passage and comprehension based(a statement about passage given and options were true, false or cannot say)
ii) Round 2 - Figure coFmpletion and identification
iii) Round 3 - Data Interpretation (little different and difficult compared to Pariksha)
iv) Round 4- Psychometric test - simple questions on yourself

What was the profile and CTC offered ? 12.99 lpa and Manager (BIU)

IITKGP

Same as IITG

Juniper

IITK

Time: 2 Hours, Platform: Hackerrank
3 Coding Questions and MCQs (mostly on aptitude and C code output):

Q1 Given an array A consisting of 'n' flask requirements and 'm' type of flasks where each flask comes with multiple capacities. Eg requirement array A=[2, 3, 6, 8, 10] and 2 flasks: [[3, 8, 12] , [4, 7]]. Here 1st flask comes in 3 capacities and 2nd flask comes in 2 capacities. You can choose only one type of flask to satisfy all the requirements in array A. Eg if you choose 1st flask then you have : '3' capacity flask for requirement 2 and 3, '8' capacity for 6 and 8 and 12 capacity for 10, so net wastage = 3 - 2 + 3 - 3 + 8 - 6 + 8 - 8 + 12 - 10 = 4. You can not choose

have only 2 ('1' and '2') distinct elements.

Q3 You are given an array A and 'q' queries where each query consist of two integers 'low' and 'high'. You have to return the number of elements in array A that lie in [low, high] range for each query.

Publicis sapient

IITH (SDE)

Time : 1hr 15 min Platform : Hacker rank
Total number of questions: 2 coding

Q1. Given string s, positive integer k, and a string char_value which is of length 26 and denotes whether the letter is special or not. special -> '1'
normal -> '0'. Find the maximum length of the substring which has at most k normal characters.
example of char_value 10101111111111111111111111 This denotes b and d are normal characters as 0 is in 2nd and 4th position.
Similar to: (https://www.geeksforgeeks.org/largest-substring-with-same-characters/) {IITH people, please verify!} can be done by sliding window?

Q2. Given integer array. Return the array in highest, smallest, second highest, second smallest, third highest, third smallest…… order.
Array contains both positive as well as negative numbers.
(https://practice.geeksforgeeks.org/problems/-rearrange-array-alternately/0/)

IITK (SDE)

Platform : Hacker rank
(languages allowed : c,c++,python and others)

Q1. Sort array on the basis of number of 1's in its binary representation.
[1,2,3,4] -> [1,2,4,3]
Q2. Given 2 strings 's' and 't', check if 't' divides 's' : "abxabx" divides "abxabxabxabx", but doesn't divides "abxabxabx"
if it divides, return length of smallest substring that divides both 's' and 't' , len(abx)=3 in this case

IITG (SDE)

1. Given a vector of strings operation ides and vector of int x, return a vector of int such that it consists product of max element and min element after performing each operation. operations vector consists of string 'push' and 'pop'. Can you provide an example test case??

2. https://leetcode.com/problems/beautiful-arrangement/
3.
4. https://drive.google.com/file/d/1FWpV221DyiLB9YjRl5e192hmjfNCefAD/view (ML)

IITR (ASDE-II)

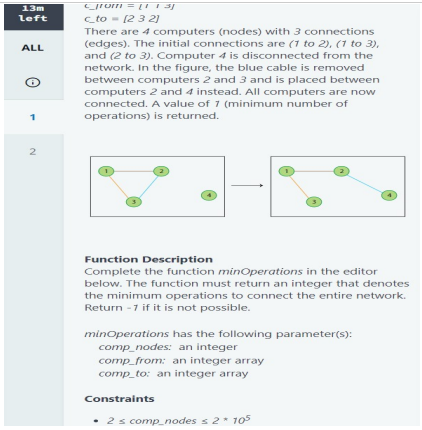
Platform : Hackerrank
Time : 75 min
Questions : 2 Coding

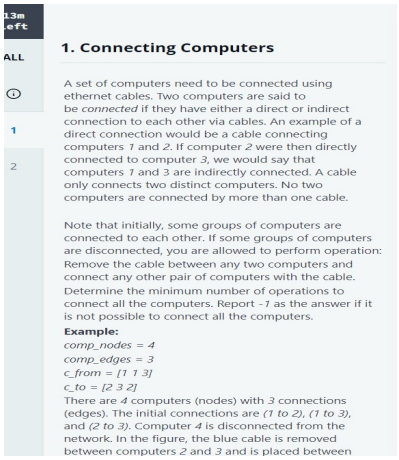
1. Same as EdgeVerve Question 3 Arbitrary Shopping asked in IIT BHU
2. Easy Two pointer question. Given scores of two teams in a football match, you had to find the count of matches where Team A scored less than or equal to every match of Team B. Return the array.

For Ex -
Team A = [2,3]
Team B = [1, 2, 3]
Return [0, 1, 2]

IITD (SDE)

1. https://www.geeksforgeeks.org/maximum-size-sub-matrix-with-all-1s-in-a-binary-matrix/

2. 



Zauba

IITG

Pen paper test;
Write system design of any of the one below systems: (what feature requirements were needed for system design ?)

- **Uber**
- **Google Drive/ Dropbox**
- **PUBG**
- **Facebook**
- **Air Bnb**
- **Google Adsense**
- **Google Maps**
- **Kafka**

IITM

same as in IITG

IIT BHU

same as in IITG + Swiggy/Competitive Coding Platform/Netflix/Github etc

IIT R

Same as in IITG + gmail/message queue

Time: 60min 2 questions

platform ?

Problem Description
Given a list of airline tickets, each with a departure city, destination city, and price, find the minimum cost of traveling from a city to another, using at most K tickets. Your algorithm must be efficient.

The input is given via standard input.
The 1st line is the departure city.
The 2nd line is the destination city.
The 3rd line is the maximum number of tickets used for the flight, K.
The 4th line is the number of airline tickets given, N.
The 5th to 4+Nth lines give each ticket's departure city, destination city, and price (comma-separated).

The output shall be given in 2 lines.
The 1st line is the cost of the entire flight.
The 2nd line is a comma-separated list of the cities, in order, in the path of the flight.
If the flight is impossible, output "ERROR" instead.

Example Input

```
Munich
Rome
2
4
Madrid,Rome,300
Rome,Munich,150
Munich,Madrid,200
Munich,Rome,600
```

Expected Output

```
500
Munich,Madrid,Rome
```

Example Input with Error

```
Rome
Madrid
1
4
Madrid,Rome,300
Rome,Munich,150
Munich,Madrid,200
Munich,Rome,600
```

Expected Output

```
ERROR
```

ExaWizards Inc. is No.1 in LinkedIn's best start-ups to work for ranking 2019 in Japan.

Problem Description
Given (1) a grid of squares each containing an English letter and (2) an English dictionary, return all words that are formed letter by letter, in order, starting from any square and moving in any direction (including diagonally), without repeating any square. Your algorithm should be efficient.

Input format:
The first line is the number of words in the dictionary.
The second line is the dictionary given as a comma-separated list of words written in all uppercase letters.
The third line is the size of the board (length of one side).
The fourth line is the board given from left to right, top to bottom as a string of all uppercase letters.

Example

The board for this example would be like this.

```
M G L O J
D O T R E
E A U C P
L B Y K M
N C L I D
```

Input

```
8
ROBOT,MOTORCYCLE,MILK,BACON,TRUCK,BAT,TOMATO,BED
5
MGLOJDOTREEAUCPLBYKMNCLID
```

Output

```
BAT,BED,MILK,MOTORCYCLE,TRUCK
```

ExaWizards Inc. is No.1 in LinkedIn's best start-ups to work for ranking 2019 in Japan.

Q2. https://leetcode.com/problems/word-search-ii/
There was a small modification in the test, you can move diagonally also. (Normal DFS was being accepted or only Trie?)

Q1. Floyd warshall's algorithm(https://www.techiedelight.com/pairs-shortest-paths-floyd-warshall-algorithm/)

Given a list of airline tickets, each with a departure city, destination city, and price, find the minimum cost of traveling from a city to another, using at most K tickets. Your algorithm must be efficient.

The input is given via standard input.
The 1st line is the departure city.
The 2nd line is the destination city.
The 3rd line is the maximum number of tickets used for the flight, K.
The 4th line is the number of airline tickets given, N.
The 5th to 4+Nth lines give each ticket's departure city, destination city, and price (comma-separated).

The output shall be given in 2 lines. The 1st line is the cost of the entire flight. The 2nd line is a comma-separated list of the cities, in order, in the path of the flight. If the flight is impossible, output "ERROR" instead.
Example Input :
Munich
Rome
2
4
Madrid,Rome,300
Rome,Munich,150
Munich,Madrid,200
Munich,Rome,600
Expected Output
500 Munich,Madrid,Rome

Solution: It can also be done using the bellman ford algorithm. Just replace V-1 by K in standard bellman ford algorithm Wrong Soln
Platform?

IITH

Exactly the same questions of IITK. 75min. STL and numpy allowed. M.Tech allowed.
IITR : EXACTLY SAME AS IITK

HSBC

IITG

Platform : Cocubes, Eligible branches: All
2 questions, 30 mins test, STL not allowed (STL was working in my case…)

Questions are easy and basic like-
1.find the number of superior element(element bigger than all right of it) in an array.
input =1,5,7,9,2 output= 2 (i.e 9,2)
2. print the middle element of array ignoring all negative elements present in array.
array : 3,7,-2,-8,9,-12,5,6 output= 9 (3,7,9,5,6)
3. 2D Array Sort You have to sort row wise or column wise?? or what? kindly elaborate this

number comes in a dice and even sum when
you get odd number in dice.
How to sort if stl not allowed By writing algorithm

IITH

Same as IITG,STL not allowed.

IITR
Same as IITG.

IIT Kanpur

Questions asked were different here.
Few of those questions are:

1. Find a common digit amongst three numbers(each number is of 3 digits only). Assumption: The numbers will have at max 1 common digit only. This was an easy question.
2. A question related to prime factorization of a number. Suppose we are given a number 'N' and an array 'arr' having a list of integers. Suppose the prime factorization of N is (a^p)*(b*q).....(z*x). We needed to return the value of p*arr[a]+q*arr[b]+...x*arr[z]. This is what I remember. Others please confirm.

There are many other questions too, someone please add.

Samsung Semiconductor

IITD

Someone had deleted questions. Please avoid such foolish behaviour.

Mr. Kim has to deliver refrigerators to N customers. From the office, he is going to visit all the customers and then return to his home. Each location of the office, his home, and the customers is given in the form of integer coordinates (x,y) (0≤x≤100, 0≤y≤100) . The distance between two arbitrary locations (x1, y1) and (x2, y2) is computed by |x1-x2| + |y1-y2|, where |x| denotes the absolute value of x; for instance, |3|=|-3|=3. The locations of the office, his home, and the customers are all distinct. You should plan an optimal way to visit all the N customers and return to his home among all the possibilities.

You are given the locations of the office, Mr. Kim's home, and the customers; the number of the customers is in the range of 5 to 10. Write a program that, starting at the office, finds a (the) shortest path visiting all the customers and returning to his home. Your program only have to report the distance of a (the) shortest path.

Constraints
5≤N≤10. Each location (x,y) is in a bounded grid, 0≤x≤100, 0≤y≤100, and x, y are integers.
Input:
You are given 10 test cases. Each test case consists of two lines; the first line has N, the number of the customers, and the following line enumerates the locations of the office, Mr. Kim's home, and the customers in sequence. Each location consists of the coordinates (x,y), which is represented by 'x y'.
Output:
Output the 10 answers in 10 lines. Each line outputs the distance of a (the) shortest path. Each line looks like '#x answer' where x is the index of a test case. '#x' and 'answer' are separated by a space.
I/O Example :::: Input (20 lines in total. In the first test case, the locations of the office and the home are (0, 0) and (100, 100) respectively, and the locations of the custom memory allocation on heap.
ers are (70, 40), (30, 10), (10, 5), (90, 70), (50, 20).)
5 Starting test case #1
0 0 100 100 70 40 30 10 10 5 90 70 50 20
6 Starting test case #2
88 81 85 80 19 22 31 15 27 29 30 10 20 26 5 14
10 Starting test case #3
39 9 97 61 35 93 62 64 96 39 36 36 9 59 59 96 61 7 64 43 43 58 1 36l
Output (10 lines in total)
#1 200
#2 304
#3 366

IITK

One coding question. Time given: 3hrs. Maximum Submissions allowed: 5.
Que: Given an undirected connected graph. Color the vertices of the graph with two colors, such that adjacent vertices have different colors. Return the
number of vertices colored with 0. If coloring is not possible, return -1.

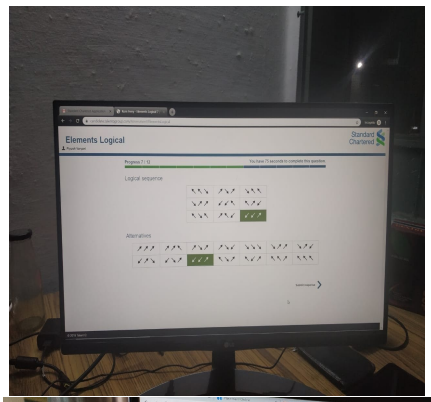
Solution: Color the first vertex with 0. Now perform BFS traversal on the graph starting from first vertex. Color the adjacent vertices with different color,
If the vertex is already visited, check if it has different color.
Note: Stack memory was very less, so do all

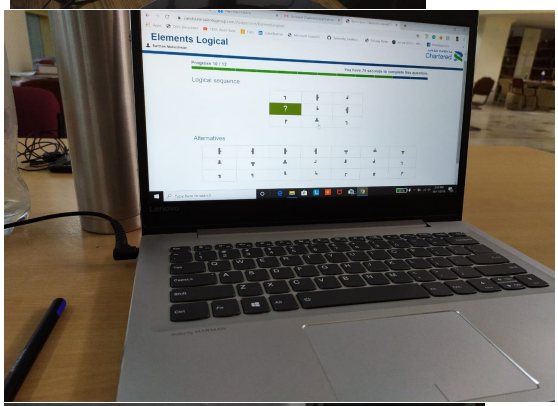
[1. May be Time complexity was not an issue, I implemented it in an awful way, still passed all 10 test cases.
2. While coding in the environment, you can use notepad to keep temporary backup of your code.]

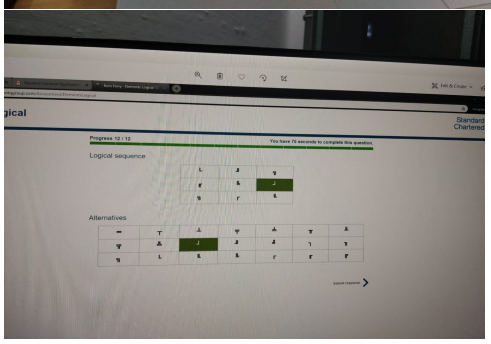
IITR

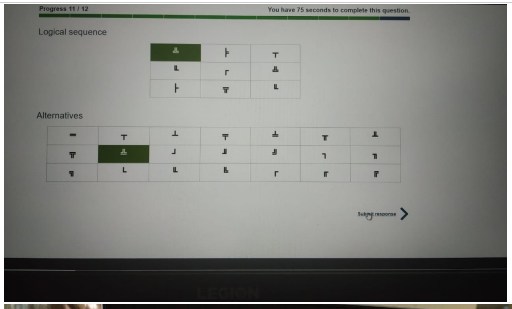
Include 5 rounds:-
Link provided by them for practice https://www.trytalentq.com/ . Test includes same pattern.
● Strength Test which is not an elimination round
● Logical Reasoning test which is an elimination round. 12 question of logical apti. to fill pattern in matrix. CUTOFF : 40 percentile
● Numerical round :- includes verbal and data interpretation (elimination round) (can attempt only those who cleared logical round).
● Coding round (in future).
3 sections :
(1st : 15 MCQ Questions where code was given and have to predict the outcome,,15 ques in 20 mins - speed needed
2nd: 1 SQL query question, lots of table given and have to write a query, 15 mins
3rd : Coding round: 1 easy question link : https://www.geeksforgeeks.org/remove-characters-from-the-first-string-which-are-present-in-the-second-string/)
● GD and then PI (in future).

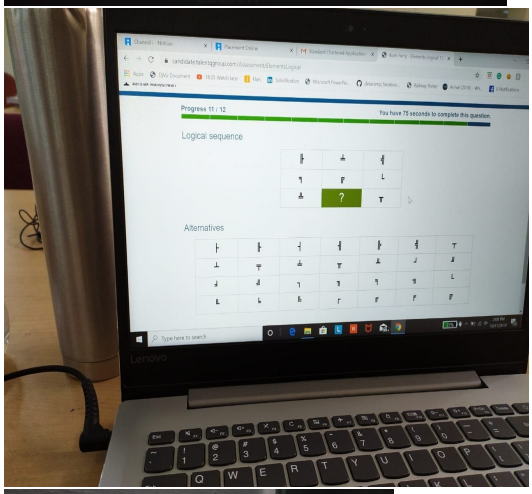
Adding few screenshots of the questions asked !

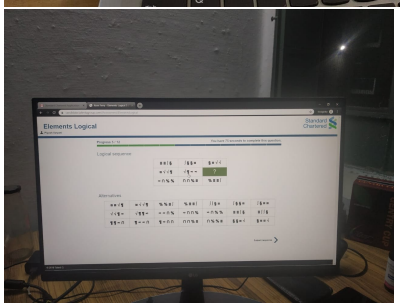












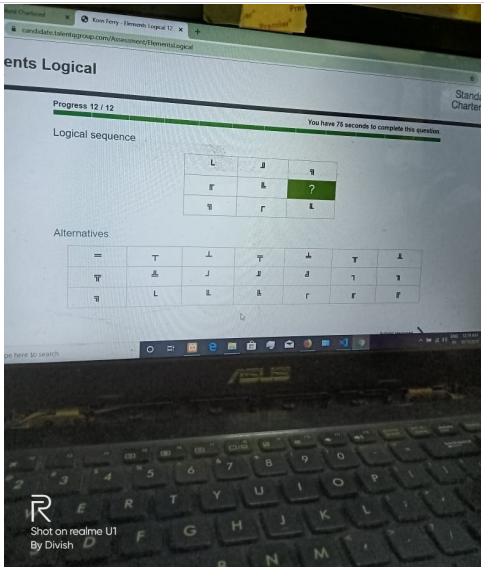
•

IIT BHU

Same pattern as IITR
- Looks like the pattern (type of pattern) for everyone was same but the boxes values and question mark was different.
  Logical Round - https://photos.app.goo.gl/h1LJX2anH9vWCh2t8
- Numerical Round - https://photos.app.goo.gl/RZU9htLPnx3Rrs4J7

Advice - There's no webcam or any monitoring going on, so give your tests in groups preferably one after another to increase chances of same questions. There are some different sets of data values but overall the questions remain similar and multiple people will easily get the same set, just look out which ppl among the group get the same question set
Advice2 - Judging by the percentile score we received in email, there was heavy negative marking although not mentioned anywhere. So play safe, as these are just elimination rounds, just do 5-6 questions correctly to stay above 50 percentile instead of marking random answers.

the percentile distribution was like this - (7-8 randomly chosen = 20 percentile), (5 correct, 1-2 random = 60+ percentile), (9 correct, 3 skipped, i.e, no negative = 85 percentile)



Eligibility ??

Silverleaf Capital

(High-Frequency Trading Analyst)

IITK, IITD

(M. Tech Allowed)
Pen and Paper based Test. 2 hours(was extended by 30 minutes)
Please someone update the CPI criteria 7(IITD)
Although Minimum CGPA criteria in JNF was mentioned 7 but upon resume shortlist they considered 8 or above.
(I don't know for sure whether above criteria (resume shortlisting on 8 or above) was valid for btech or not? (IITD))

The test consisted of 7 questions, where some questions had different parts. The test was mainly based on probability and statistics. There were marks for writing the approach as well. 2 marks were allotted for free if we wrote 'Don't consider this answer' beside a question :D

1. A game in which there is a probability of .9 for neither winning nor losing, a probability of .09 for winning 10 dollars and a probability of .01 for winning 50 dollars. An individual pays 50 dollars at the beginning of the game and keeps on playing until he loses all his money. Find the probability that he can play at least 13 games.
2. Monty Hall Problem. Extension to Monty Hall problem- Suppose there is a probability of p1, p2 and p3 to have a car in door 1, 2 or 3 respectively. We choose door 1. The host opens door 3 and asks us if we would like to switch to door 2. In which condition will it be better to switch to door 2?
3. There are N ropes kept in a box. Everytime, 2 free ends of any rope(s) are picked and tied until there are no free ends left. Find the expected number of loops.
   Solution on brainstellar
4. If the maximum number of an array is found by storing the current max value of in a variable, while scanning the array from left to right, find the expected number of updates in the variable assuming that all elements of the array are distinct.
5. There are n buildings placed on integral positions on an integer line. m towers have to be placed on that integer line at integral positions. Write a pseudocode to find the minimum sum of distances from each building with its nearest tower.
6. Team A and B have a game of 7 rounds and the team winning the majority of the matches in the series wins the series. A t-shirt manufacturer manufactures t-shirts of team A and will have a profit of 80 million dollars if team A wins the series by selling the t-shirts of team A. If team A loses, then the manufacturer neither gains nor loses anything.
   a. The manufacturer also bids on the outcome of a series (not on the individual game). Show that it is possible to bid in a way such that he takes a minimum amount irrespective of the outcome of the game. How can this minimum amount be maximized?
   b. The manufacturer bids the same amount separately on individual games. Show that there is a minimum amount that the manufacturer can always win. How can this minimum amount be maximized?
   c. The manufacturer is allowed to bid different amounts on different games. Show that there is a minimum amount that the manufacturer can win

a. We strongly believe that X is a uniform distribution in [1,2]. What is the maximum premium that we would like to pay?
b. This time, the settlement value is 1/X instead of X. (I don't remember this word and didn't understand its meaning). This time what is the max premium that we would like to pay?
c. The host thinks that it is better to choose our strike from a range of options. So we get some options like [1, 1.5, 2](I don't remember the options). After playing so many games, we strongly believe that the host thinks that 1/X is a normal distribution between [0.5,1]. We need to choose a strike. If the host wants, he can deny playing the game after knowing the strike. What is the max penalty that we can pay. (Please someone verify part c, I think I am mixing up strike and penalty)

Samsung R&D Noida

IITG

1 coding question, 3hr. Other

details already mentioned in doc.
- Graph Cycle :https://imgur.com/a/qRJeFGf

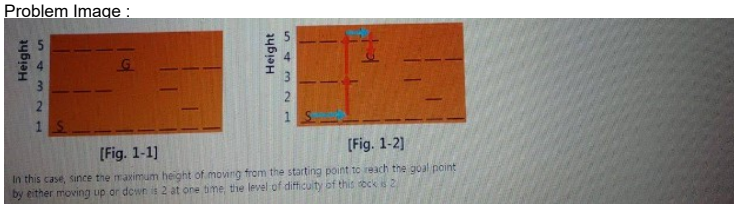
IIT BHU @ 10/10/2019

Samsung Noida (SRIN) conducted the test on SC Software | STL Not Allowed | 1 Section | 180 min | 1 coding question | 50 test cases
Only those who pass all 50 cases pass the test generally.

Q1 - Rock Climbing : Given a map of Rock Climbing for Mr. K, you need to tell the biggest jump (or difficulty) that he needs to make in his attempt to reach Goal.
Problem Statement : Mr. K wants to climb a rock from a starting point to the destination point. Given a map of the rock mountain which N = height, M = width. In the map, character '-' is the possible foot place spot (where he can climb). He can freely move up/down at vertical spots which '-' exists sequentially. It's impossible to move horizontally in case '-' is not consecutive in the same height level. The maximum height of moving from the starting point to the destination point is the level of difficulty of rock climbing . The total distance of movement is not important. There is more than one path from the starting point to the destination point.

Output: The minimum level of difficulty of all rock climbing paths level.
Hint: Start with difficulty level 0 and then keep increasing it one by one.

Problem Image :



Solution Code : Code for Rock Climbing Level-By-Level

Did this code pass all the 50 Test Cases? Shouldn't the level be initialized to 0 because if S and G are at the same level, answer should be 0.

Updated to start from zero ✓ Thanks

IITKGP

3 hours. 1 question. Airplane Game collect max coins.
Test cancelled. :P

https://imgur.com/a/i5vVEDn

IITR,IITKGP

Marathon
Mr. Choi has to do a marathon of D distance. He can run at 5 different paces, each pace will have its time consumed per km and its energy consumption. He can only run till he had energy left. Find the minimum time required for choi to complete marathon if he has H energy.

INPUT :
Input order :
Total test cases
Total Energy(10) Total Dist(5)
Next 5 lines - input for 5 different paces in min,sec and energy order

Min(pace3) sec(pace3) engery_consumption(pace3)
Min(pace4) sec(pace4) engery_consumption(pace4)
Min(pace5) sec(pace5) engery_consumption(pace5)
SOLN:- USE 3D DP . EASY PASS

Accenture Japan

IITG

2 coding questions, test cancelled.

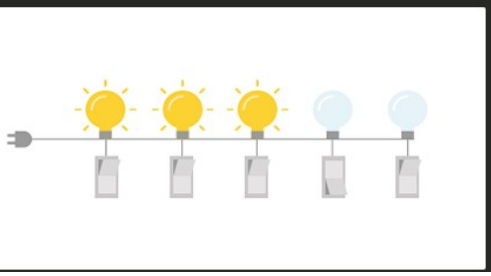
There are N bulbs, numbered from 1 to N, arranged in a row. The first bulb is plugged into the power socket and each successive bulb is connected to the previous one (the second bulb to the first, the third bulb to the second, etc.).

Initially, all the bulbs are turned off. At moment K (for K from 0 to N−1), we turn on the A[K]-th bulb. A bulb shines if it is on and all the previous bulbs are turned on too.

Write a function `solution` that, given an array A of N different integers from 1 to N, returns the number of moments for which every turned on bulb shines.

Examples:

1. Given A=[2, 1, 3, 5, 4], the function should return 3.



- At the 0th moment only the 2nd bulb is turned on, but it does not shine because the previous one is not on.
- At the 1st moment two bulbs are turned on (1st and 2nd) and both of them shine.
- At the 2nd moment three bulbs are turned on (1st, 2nd and 3rd) and all of them shine.
- At the 3rd moment four bulbs are turned on (1st, 2nd, 3rd and 5th), but the 5th bulb does not shine because the previous one is not turned on.
- At the 4th moment five bulbs are turned on (1st, 2nd, 3rd, 4th and 5th) and all five of them shine.

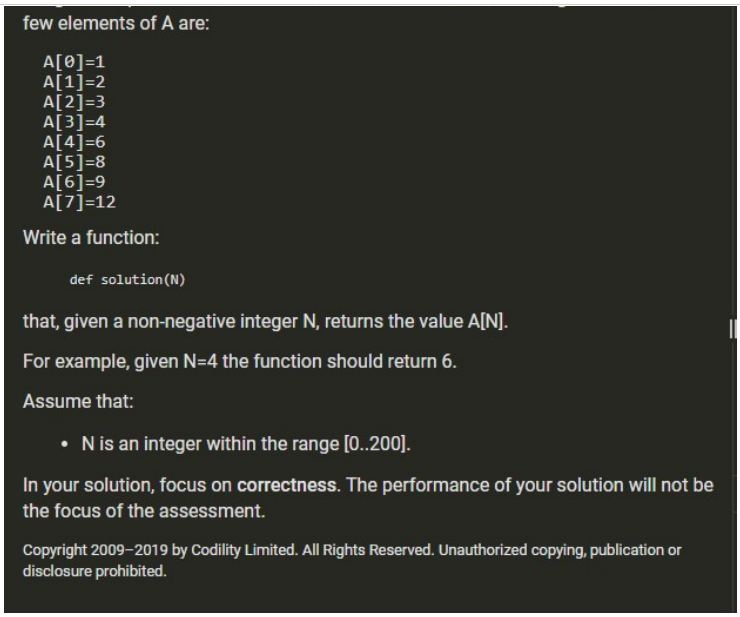
There are three moments (1st, 2nd and 4th) when every turned on bulb shines.

2. Given A=[2, 3, 4, 1, 5], the function should return 2 (at the 3rd and 4th moment every turned on bulb shines).

3. Given A=[1, 3, 4, 2, 5], the function should return 3 (at the 0th, 3rd and 4th moment every turned on bulb shines).

Write an **efficient** algorithm for the following assumptions:

- N is an integer within the range [1..100,000];
- the elements of A are all distinct;
- each element of array A is an integer within the range [1..N].



N

IITR

Use this link to have a look at the questions: https://imgur.com/gallery/oCQAXmc

IITKGP

Ugly Numbers from GFG
Number of bits set in a*b. PS: a*b could fit into a long long

Slot 1-

https://drive.google.com/file/d/1s6p7g4j-DE2lGkB8fw8ro4X5N_NV5lmZ/view?usp=sharing
https://drive.google.com/file/d/1TkvBxg87CiMmWiq0NyQbdCjwTsM-cmoU/view?usp=sharing
https://drive.google.com/file/d/1e-0W5aEUNRrQN1U30r3LuV1Saq_O0BBh/view?usp=sharing

Slot 5-
https://drive.google.com/open?id=1U_AxPCYRblTufHBotly3xfj4Px7mUFcN
Python allowed? Yes

IITD

Number of bits set in a*b.

Ugly numbers
An easy question on stack.

IITK

Bulb question from IITG
Slot 5 question from IITKGP

Zomato

IIT G

Platform : Interviewbit, Test Duration : 1 hour, 8MCQs, 3 Coding questions

abstraction

Coding Questions:
1. https://www.interviewbit.com/problems/anagrams/
2. https://leetcode.com/problems/best-time-to-buy-and-sell-stock-with-transaction-fee/
3. Given an array A of length N, A[i] stores price of petrol on ith day. Tank can fill upto B litre. 1litre petrol is spent in each day's commute. If a person commutes for N days, give the minimum amount in which he can manage the N litres of petrol.
Provide constraints for B and N and A[i]

IIT BHU

Zomato conducted test on Interviewbit | STL Allowed | 2 Sections | Total 60m | Section Inter-switching Allowed | All questions same for All

Section 1 : Objective

8 Multiple Choice Questions : DS, Algo, OOPs, OS, Run-time vs Compile-time Polymorphism, Constructor & Destructor, Capitalize function in JAVA
Two Integer/Decimal Answer type : Waiting time in SRTF Numerical, Insertion Sequences in Hashing Numerical GFG

Section 2 : Coding

Q1 - Find the lexicographically smallest achievable string, given a string of digits 0 to 9, and two numbers 'r' and 'a', and you can perform two operations on the string infinite no. of times:
Addition - Change character s[i] to (s[i]+a)%10 for all odd indexes
Rotation - Right rotate the string by r places
Solution : Brute-force-based Solution Someone Please post the solution link for this question too

Q2. *From Leetcode*. Find the decoded string given the rule is: k[encoded_string], where the encoded_string inside the square brackets is being repeated exactly k times. Note that k is guaranteed to be a positive integer.
s = "3[a]2[bc]", return "aaabcbc"
s = "3[a2[c]]", return "accaccacc"
s = "2[abc]3[cd]ef", return "abcabccdcdcdef"
Solution : Stack-based Solution Leetcode

Q3. *From Leetcode*. Find the h-Index of a scientist given the no. of citations of each of his research papers. A scientist has h-Index h if h of her N papers have at least h citations each, and the other N − h papers have no more than h citations each.
Solution : Sorting-based Solution Leetcode

How to complete 3 coding questions and 8 MCQs in 1 hour ? Ridiculous

Why the answer for test case [1,2,3,4] is 2 as the problem suggests that there are h papers having at least h citations each. If 2 is the answer then the number of papers having atleast h citations is 3 how come WTF? if you take 3 citations then [2,3,4] set will have 2 as a citation which fails the criteria of atleast 3,

But how is 2 justified if 2 is the answer then we must have **exactly 2** papers with citations atleast 2.
Ans: If we take 2 as citation then {3,4} satisfy the condition, also (n-h)
which in this case is also 2,so the remaining 2 elements {1,2} satisfy the condition where maximum h index is 2 which is not more than 2.
If we take 2 as citation then {2,3,4} satisfy the condition right , then the **exactly h** condition is not satisfied??

IIT Roorkee

Same as IIT BHU (Exactly Same)
Use this link to look at the questions: https://imgur.com/gallery/GoDG8L7

IIT ISM Dhanbad

same as IIT R (No difference)

Someone please post the answers of MCQs and Coding question 1

Adobe

IITKGP (same questions in IITM)

1) Given an array, Just remove adjacent **pairs** of duplicate elements and return number of remaining elements.
Eg. A=[1,1,2,2,3] so answer is 1
If A=[1,1,2,2,1,3] so answer is 2. (3rd one will not be removed as it will not form a pair with any other 1)
if A=[1,2,2,1,3,3] so answer is 0

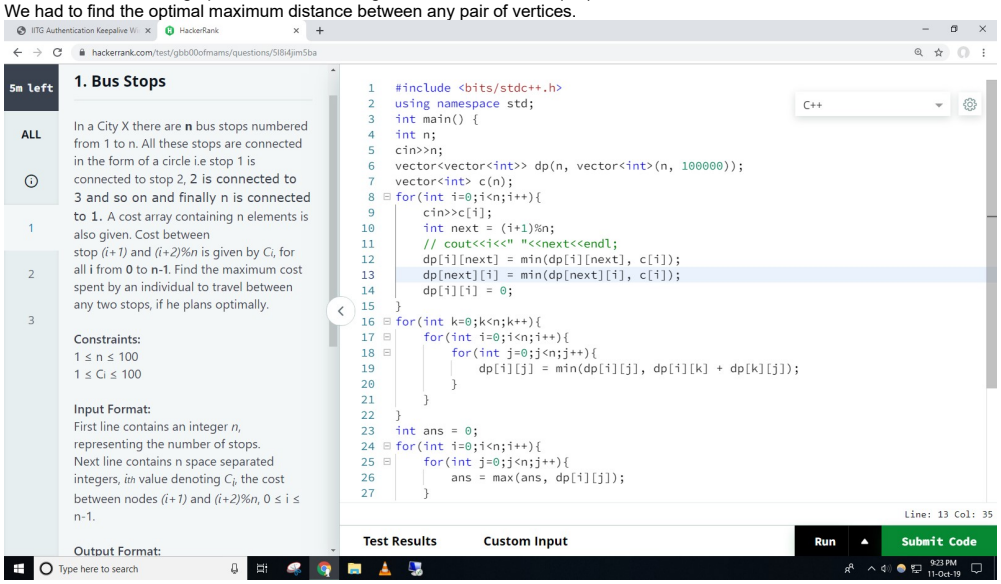
Eg. s= “bbbbbaaaaabbababaaba. So answer is “ababa”.
Eg. s=”heisagoodboy” So answer is “agood”.
Everyone got 11/12 cases passed and 1 TLE.
Take matrix of size 26^5 to pass all test cases. Indexes of array tell the location of string. Like 0th index shows “aaaaa”, 1st index shows “aaaab” and last index represents “zzzzz”. Can be stored using 26^4*a + 26^3*a ...and so on. Passes all test cases

3) Given 2 strings, s1 and s2. Find a string s which is a concatenation of **subsequence** of s1 and subsequence of s2 and is longest possible palindrome and **return its length**.
Eg. s1 = ban, s2=ana. So answer is **5** (‘anana’).
Eg. s1 = abc, s2=abc. So answer is 3 (‘aba’)
Soln:- Concat s1 and s2. Let s=s1+s2. t=reverse of s. Apply LCS on s and t, which is the answer. All test cases passed.

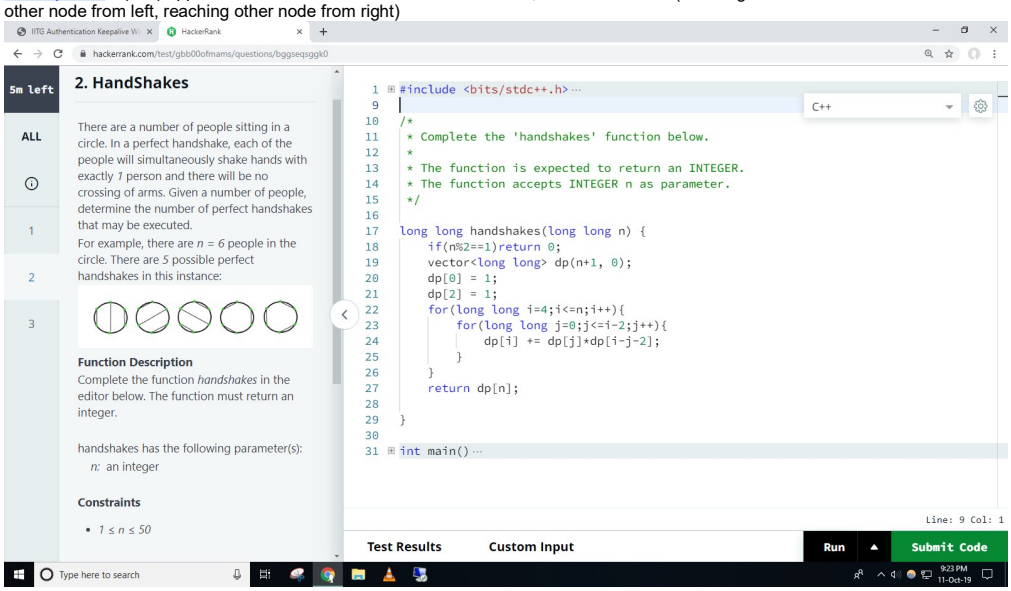
IIT G

Platform: Hackerrank, Test Duration: 1.5 hr, 3 Coding questions

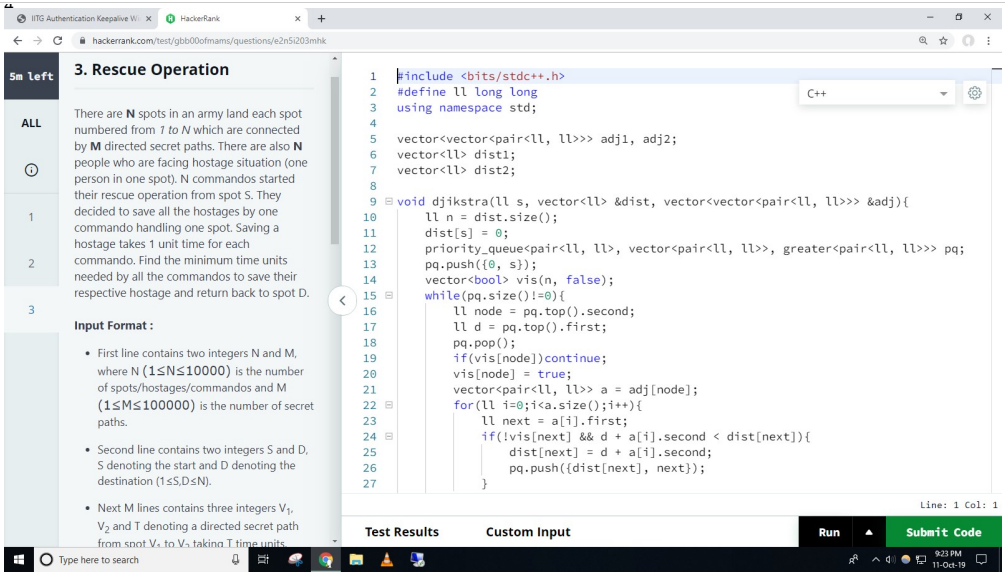
1. Given an undirected graph with n vertices. Edges were between i and (i+1)%n for 0 <= i < n. We had to find the optimal maximum distance between any pair of vertices.



Soln: Apply Floyd-Warshall Algorithm and find max distance among all pairs. Did Floyd Warshall Algo pass all the test cases ?
Don't apply Floyd Warshall It takes N^3 . Can be Done in N^2. Did pass all the cases though.
how can we solve it in N^2? please elaborate approach https://onlinegdb.com/H1sbqme3H O(n^2) approach : find distance of each node with other, which can be min(reaching other node from left, reaching other node from right)



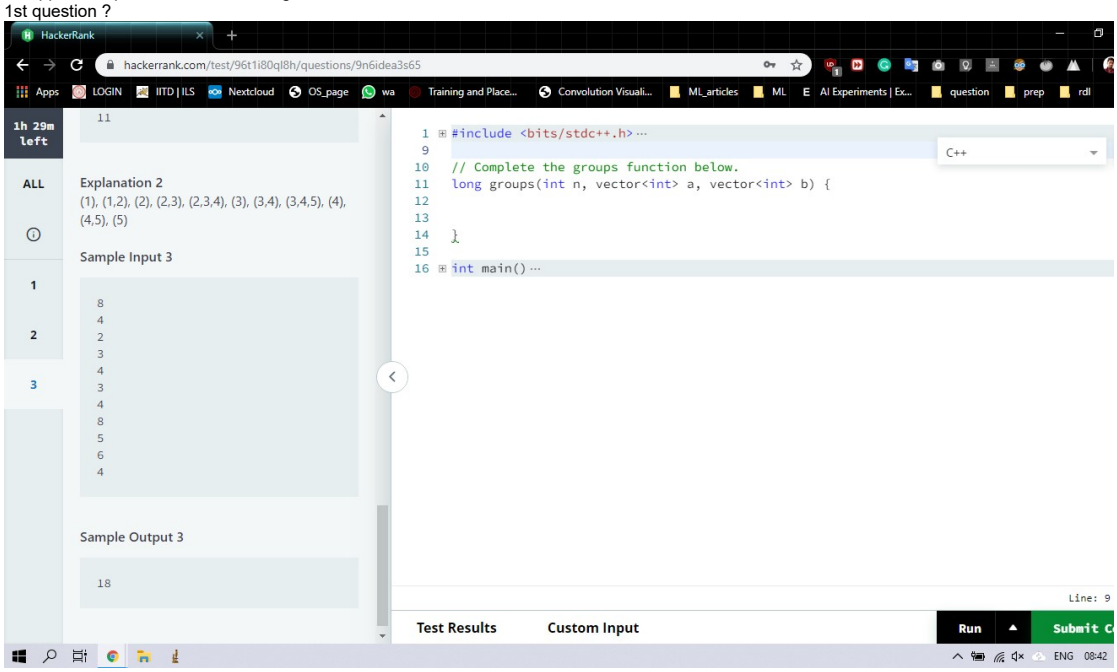
2. https://www.interviewbit.com/problems/intersecting-chords-in-a-circle/
Explanation 1:
If points are numbered 1 to 2 in a clockwise direction, then different ways to draw chords are:
{(1-2)} only.
So. we return 1.m of max time to reach from source -> anv node -> destination.



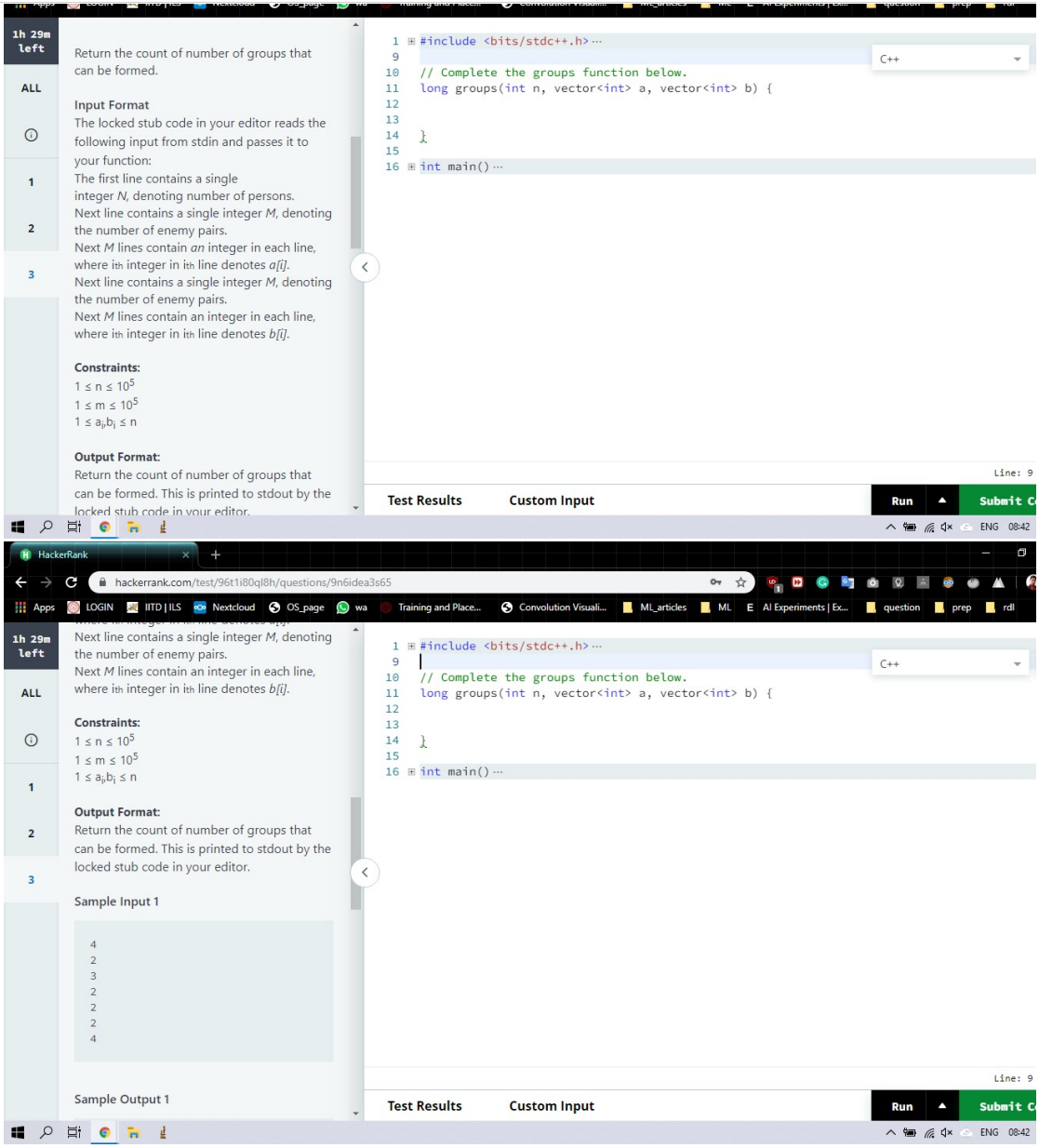
Soln: Apply dijkstra from source to all the nodes and then from destination to all the nodes with edges reversed(which will be equivalent to finding distance from all nodes to the destination). Answer will be the maximum of (distance of source to node) + (distance of node to destination)

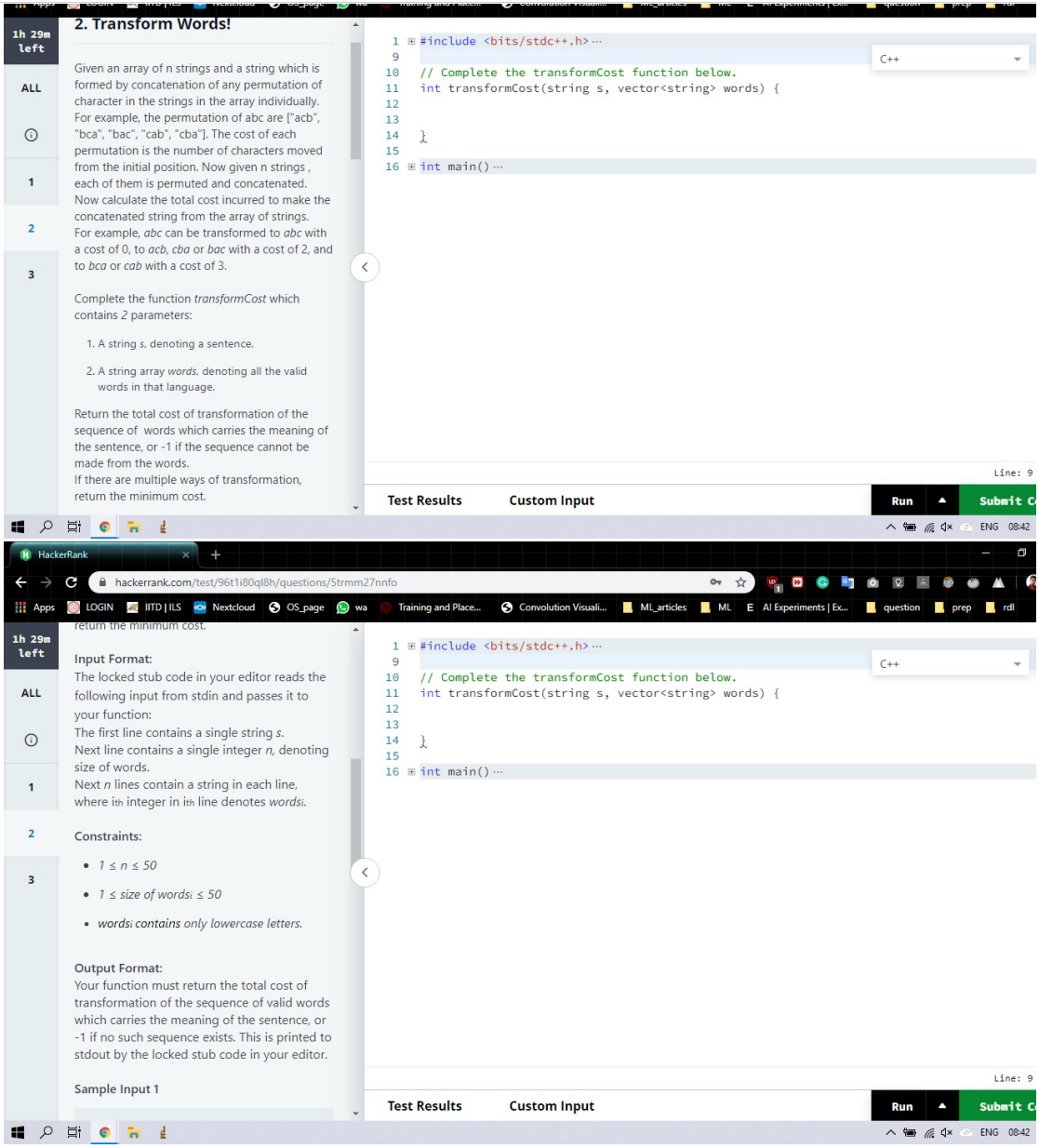
IITD

Find questions at the link below:
https://owncloud.iitd.ac.in/nmake_pairextcloud/index.php/s/WfHeLASyEQS9pNG
Error while opening the .rar file
Unzipped file question added as image:
1st question ?

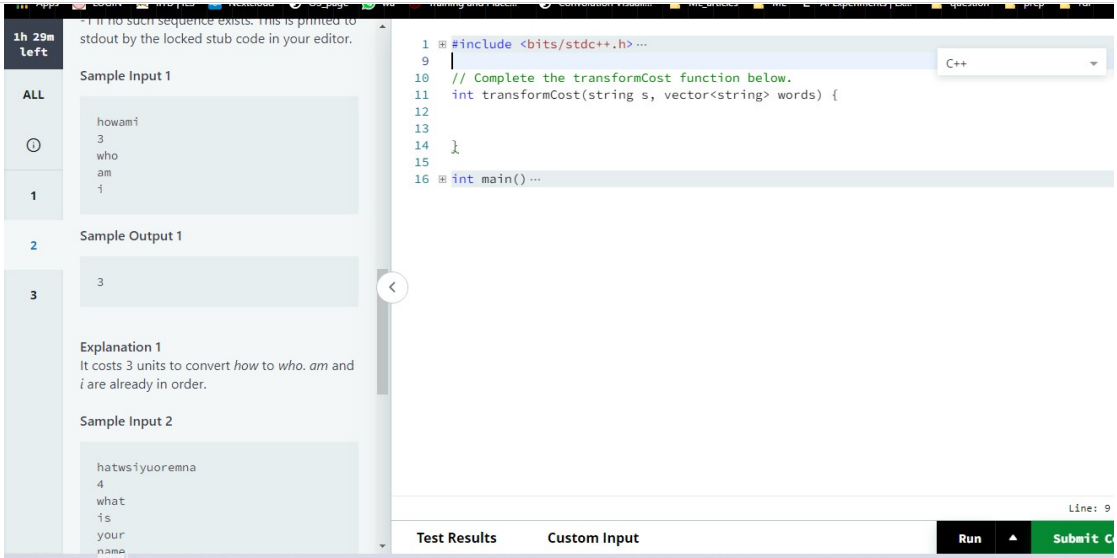


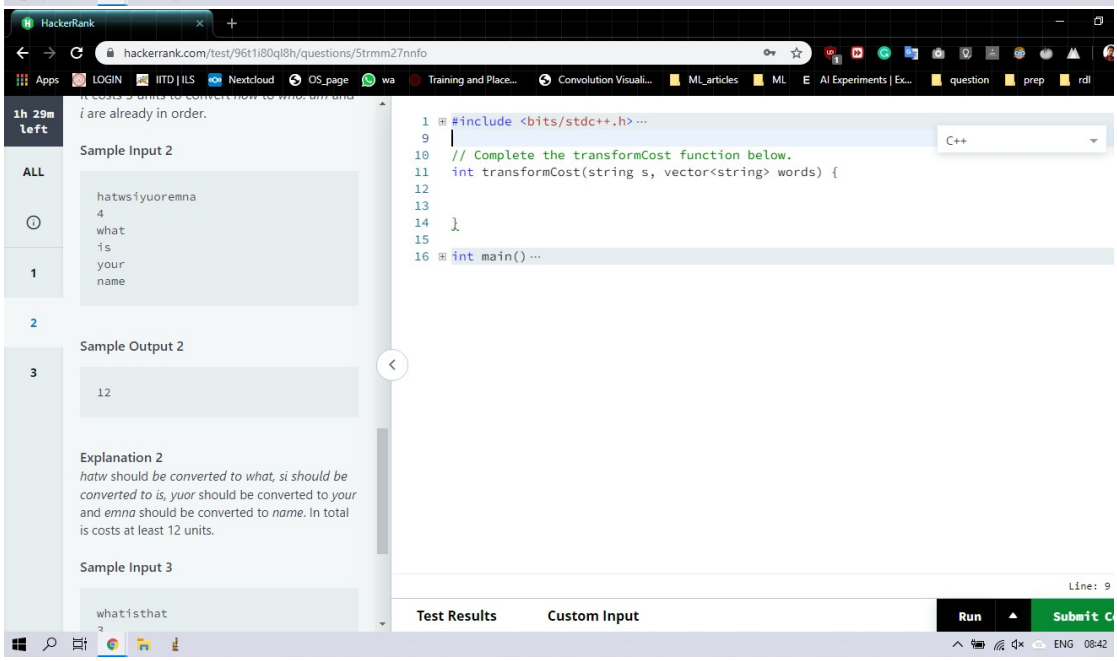
n

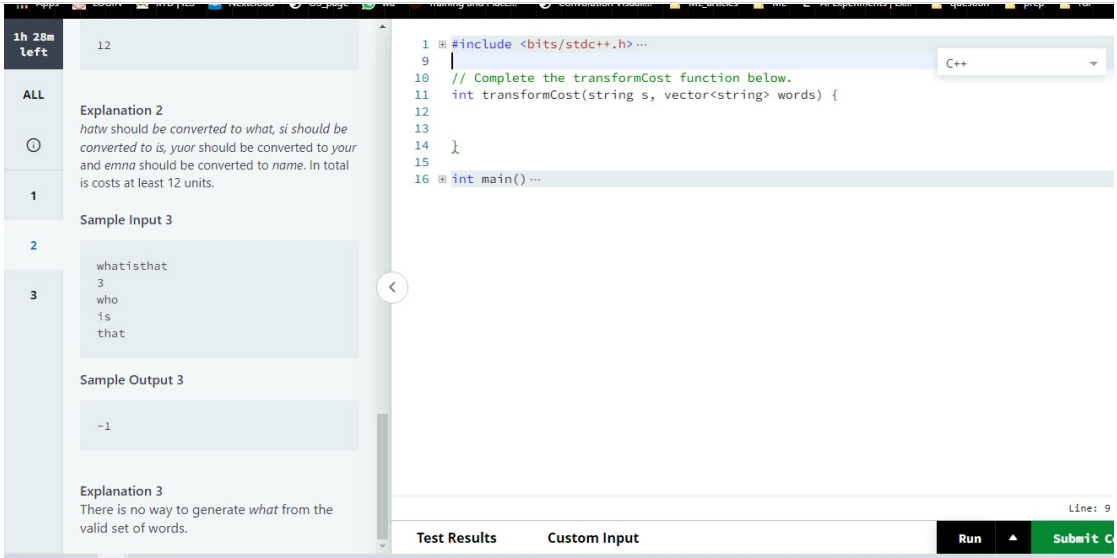


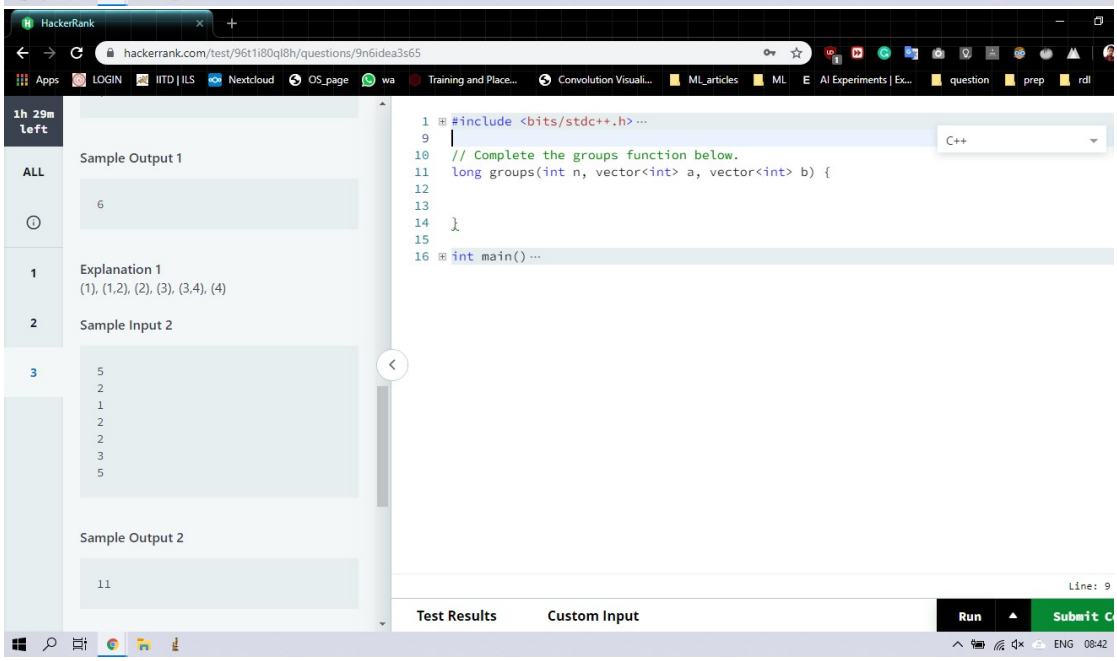

1h 29m left
ALL
1
2
3
2. Transform Words!
Given an array of n strings and a string which is formed by concatenation of any permutation of character in the strings in the array individually. For example, the permutation of abc are ["acb", "bca", "bac", "cab", "cba"]. The cost of each permutation is the number of characters moved from the initial position. Now given n strings , each of them is permuted and concatenated. Now calculate the total cost incurred to make the concatenated string from the array of strings.
For example, abc can be transformed to abc with a cost of 0, to acb, cba or bac with a cost of 2, and to bca or cab with a cost of 3.
Complete the function transformCost which contains 2 parameters:
1. A string s, denoting a sentence.
2. A string array words, denoting all the valid words in that language.
Return the total cost of transformation of the sequence of words which carries the meaning of the sentence, or -1 if the sequence cannot be made from the words.
If there are multiple ways of transformation, return the minimum cost.
C++
#include <bits/stdc++.h>
// Complete the transformCost function below.
int transformCost(string s, vector<string> words) {
}
int main()
Line: 9
Test Results
Custom Input
Run
Submit
ENG 08:42

HackerRank
hackerrank.com/test/96t1i80ql8h/questions/5trmm27nnfo
Apps LOGIN IITD | ILS Nextcloud OS_page wa Training and Place... Convolution Visuali... ML_articles ML AI Experiments | Ex... question prep rdl
1h 29m left
ALL
1
2
3
return the minimum cost.
Input Format:
The locked stub code in your editor reads the following input from stdin and passes it to your function:
The first line contains a single string s.
Next line contains a single integer n, denoting size of words.
Next n lines contain a string in each line, where ith integer in ith line denotes wordsi.
Constraints:
1 ≤ n ≤ 50
1 ≤ size of wordsi ≤ 50
wordsi contains only lowercase letters.
Output Format:
Your function must return the total cost of transformation of the sequence of valid words which carries the meaning of the sentence, or -1 if no such sequence exists. This is printed to stdout by the locked stub code in your editor.
Sample Input 1
C++
#include <bits/stdc++.h>
// Complete the transformCost function below.
int transformCost(string s, vector<string> words) {
}
int main()
Line: 9
Test Results
Custom Input
Run
Submit
ENG 08:42









Was it graph one ? Reply asap - IITR has test today

IITR

https://www.geeksforgeeks.org/0-interview-experience-set-55-campus-full-time-mts-profile/
all three questions were exactly the same
question 3) 12 test cases , with brute force(On^2) 10-11 can be passed, all 12 passed using Z algorithm(O(n)).can anyone tell how to implement Z algo in this question.
If s2 is aa*b, Use Z algorithm once for aa+$+s1, and once for b+$+s2. Then from z array see which b's are occurring after aa just keep adding the count.

IIT BHU

Walter is given different tasks have to be executed simultaneously on a limited number of computers. Each computer can execute at most one task, and each task must be fully executed on a single computer. He is given two arrays complexity and computers. Element *i* of complexity is the complexity of the i^{th} task. Element *i* of computers is the maximal complexity of a task that can be handled by the i^{th} computer.

Complete the *assignment* function in your editor. It has *2* parameters:

1. An integer array *complexity*, where *complexity*$_i$ denotes the complexity of the i^{th} task.
2. An integer array *computers*, where *computers*$_i$ denotes the maximal complexity of a task that can be handled by the i_{th} computer.

It must return an integer denoting the maximal number of tasks that can be executed on the given computers.

Input Format

The locked stub code in your editor reads the following input from stdin and passes it to your function:
The first line contains an integer, *N*, denoting the size of complexity array.
Next *N* line contains an integer in each line, integer in the i^{th} line denotes the element complexity$_i$.
Next line contains an integer, *M*, denoting the size of computers array.
Next *M* line contains an integer in each line, integer in the i_{th} line denotes the element computers$_i$.

Constraints

```cpp
    sort(complexity.begin(), complexity.end());

    bool used[computers.size()] = {false};
    int ans = 0;

    for (int i = 0; i < complexity.size(); i++){
        int req = complexity[i];

        //find a computer
        auto itr = lower_bound(computers.begin(), computers.end(), req);
        while(used[itr - computers.begin()] && itr != computers.end())
            itr++;
        if (itr != computers.end()){
            int pc = itr - computers.begin();

            used[pc] = true;
            ans++;
        }


    }

    return ans;
}
int main() ···
```

Line: 9

Test Results Custom Input Run Submit

Q2 Same as IIT D q3, only the language was changed

25s left

ALL

3. White vs Watson

Given a list of *n* strings(consisting of digits from zero to nine) and an integer *k*, find the winner of a game that is played by two players alternating turns. The rules of the game are as follows:

- One of the players(let's call him *Z*) moves first and chooses a string from the first *k* strings.
- Then, other player chooses a string from the first *k* strings after the last chosen string by *Z*. That is, if *Z* chose string at index *p*, then other player can choose a string from indices *p + 1* to *p + k* inclusive.
- Both players alternate turns and choose a string from the first *k* strings after the last chosen string by other player.
- A string can be chosen only if its first character is same as the last character of the last chosen string by the other player.
- *Z* can choose any string from the first *k* strings in the first move.
- Both players play optimally.

Find the winner of the game.

Complete the function find_winner in the editor below. It has 2 parameters: array *arr* of size *n* where *arr*$_i$ denotes the i^{th} string, and an integer *m*.

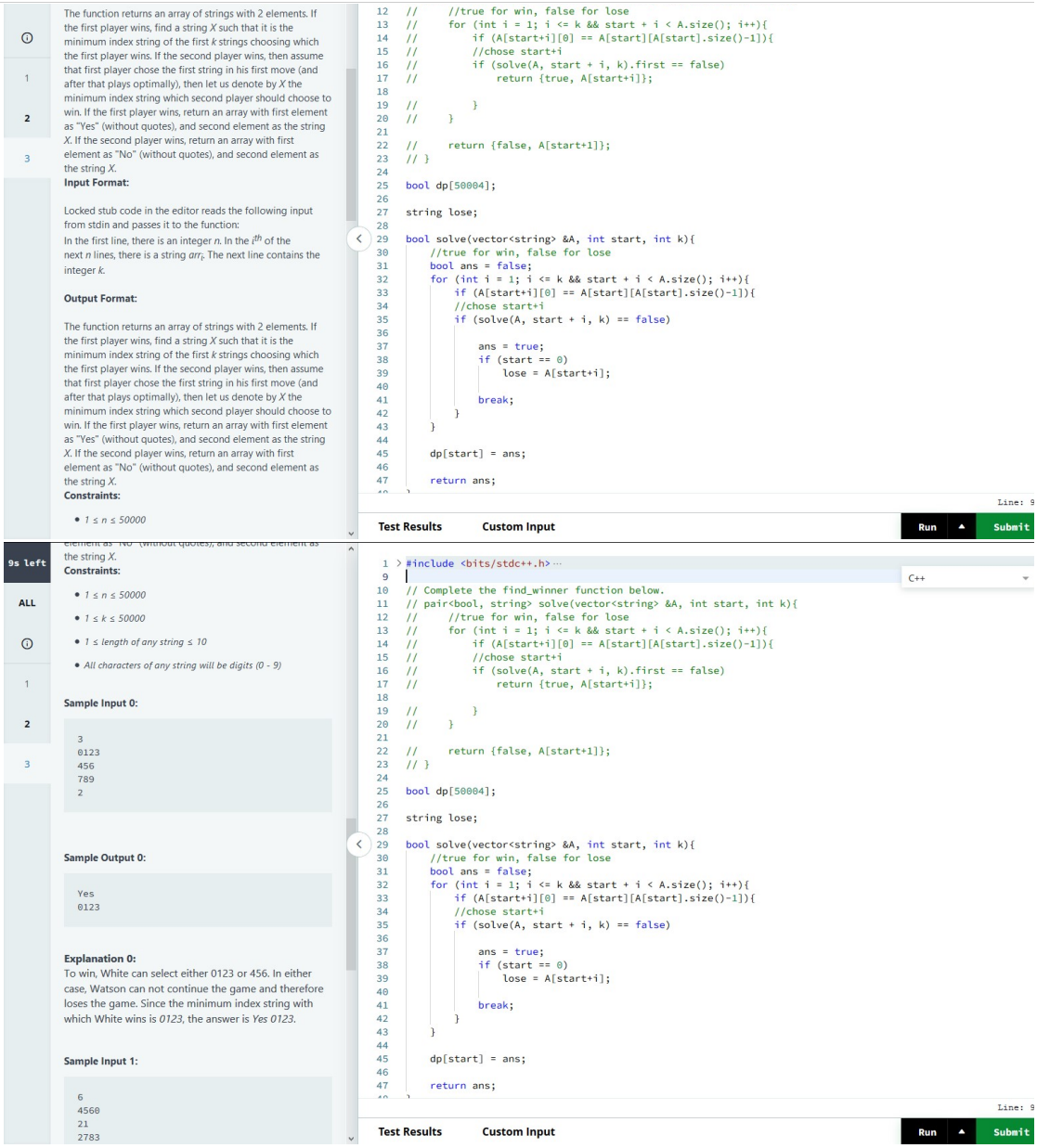
The function returns an array of strings with 2 elements. If the first player wins, find a string *X* such that it is the minimum index string of the first *k* strings choosing which the first player wins. If the second player wins, then assume that first player chose the first string in his first move (and after that plays optimally), then let us denote by *X* the

```cpp
#include <bits/stdc++.h> ···

// Complete the find_winner function below.
// pair<bool, string> solve(vector<string> &A, int start, int k){
//     //true for win, false for lose
//     for (int i = 1; i <= k && start + i < A.size(); i++){
//         if (A[start+i][0] == A[start][A[start].size()-1]){
//         //chose start+i
//         if (solve(A, start + i, k).first == false)
//             return {true, A[start+i]};

//         }
//     }

//     return {false, A[start+1]};
// }

bool dp[50004];

string lose;

bool solve(vector<string> &A, int start, int k){
    //true for win, false for lose
    bool ans = false;
    for (int i = 1; i <= k && start + i < A.size(); i++){
        if (A[start+i][0] == A[start][A[start].size()-1]){
        //chose start+i
        if (solve(A, start + i, k) == false)

            ans = true;
            if (start == 0)
                lose = A[start+i];

            break;
        }
    }

    dp[start] = ans;

    return ans;
}
```

C++

Line: 9

Test Results Custom Input Run Submit



The function returns an array of strings with 2 elements. If the first player wins, find a string *X* such that it is the minimum index string of the first *k* strings choosing which the first player wins. If the second player wins, then assume that first player chose the first string in his first move (and after that plays optimally), then let us denote by *X* the minimum index string which second player should choose to win. If the first player wins, return an array with first element as "Yes" (without quotes), and second element as the string *X*. If the second player wins, return an array with first element as "No" (without quotes), and second element as the string *X*.

Input Format:

Locked stub code in the editor reads the following input from stdin and passes it to the function:
In the first line, there is an integer *n*. In the i^{th} of the next *n* lines, there is a string arr_i. The next line contains the integer *k*.

Output Format:

The function returns an array of strings with 2 elements. If the first player wins, find a string *X* such that it is the minimum index string of the first *k* strings choosing which the first player wins. If the second player wins, then assume that first player chose the first string in his first move (and after that plays optimally), then let us denote by *X* the minimum index string which second player should choose to win. If the first player wins, return an array with first element as "Yes" (without quotes), and second element as the string *X*. If the second player wins, return an array with first element as "No" (without quotes), and second element as the string *X*.

Constraints:

- $1 \le n \le 50000$

```
//     //true for win, false for lose
//     for (int i = 1; i <= k && start + i < A.size(); i++){
//         if (A[start+i][0] == A[start][A[start].size()-1]){
//         //chose start+i
//         if (solve(A, start + i, k).first == false)
//             return {true, A[start+i]};

//         }
//     }

//     return {false, A[start+1]};
// }

bool dp[50004];

string lose;

bool solve(vector<string> &A, int start, int k){
    //true for win, false for lose
    bool ans = false;
    for (int i = 1; i <= k && start + i < A.size(); i++){
        if (A[start+i][0] == A[start][A[start].size()-1]){
        //chose start+i
        if (solve(A, start + i, k) == false)

            ans = true;
            if (start == 0)
                lose = A[start+i];

            break;
        }
    }

    dp[start] = ans;

    return ans;
}
```

Line: 9

Test Results Custom Input Run Submit

9s left ALL

Constraints:

- $1 \le n \le 50000$
- $1 \le k \le 50000$
- *1 ≤ length of any string ≤ 10*
- *All characters of any string will be digits (0 - 9)*

Sample Input 0:

```
3
0123
456
789
2
```

Sample Output 0:

```
Yes
0123
```

Explanation 0:
To win, White can select either 0123 or 456. In either case, Watson can not continue the game and therefore loses the game. Since the minimum index string with which White wins is *0123*, the answer is *Yes 0123*.

Sample Input 1:

```
6
4560
21
2783
```

```
#include <bits/stdc++.h> ···

C++

// Complete the find_winner function below.
// pair<bool, string> solve(vector<string> &A, int start, int k){
//     //true for win, false for lose
//     for (int i = 1; i <= k && start + i < A.size(); i++){
//         if (A[start+i][0] == A[start][A[start].size()-1]){
//         //chose start+i
//         if (solve(A, start + i, k).first == false)
//             return {true, A[start+i]};

//         }
//     }

//     return {false, A[start+1]};
// }

bool dp[50004];

string lose;

bool solve(vector<string> &A, int start, int k){
    //true for win, false for lose
    bool ans = false;
    for (int i = 1; i <= k && start + i < A.size(); i++){
        if (A[start+i][0] == A[start][A[start].size()-1]){
        //chose start+i
        if (solve(A, start + i, k) == false)

            ans = true;
            if (start == 0)
                lose = A[start+i];

            break;
        }
    }

    dp[start] = ans;

    return ans;
}
```

Line: 9

Test Results Custom Input Run Submit

Bizongo

IIT BHU

Which profile ? Designation - Software Engineer-I
only function or total code?
Platform - AMCAT
Round 1 [60 minutes] - 60 MCQ, 20 English + 20 Reasoning/Aptitude + 20 Quant. What were the questions asked in Quant? Please tell ASAP
Round 2 (45 minutes) - 2 coding questions. No constraints mentioned, mostly bruteforce was getting accepted
Everyone got different questions. Some questions which i know are -

- Find if two binary trees are identical
- Subset sum (return 1 if any subset sums to a given sum, else return 0)
- Given a regex type of string with symbols *, +, etc. return whether another string can be formed/matched with this regex
- Given a linked list, reverse left half and right half independently. If odd length, middle element should remain as it is.

Eg Input = 1 -> 2 -> 3 -> 4 -> 5 -> 6
Output = 3 -> 2 -> 1 -> 6 -> 5 -> 4

- Maximum consecutive number of '1' in given binary string.
- Knapsack with repetition allowed.

Everything was the same (Coding Questions too) as of IIT BHU.

Alphonso

IITG (Technologist Profile)

3 coding and 10 mcq; 1.5 hr for coding and 0.5hr for mcq. total 2hr test.
Coding:https://imgur.com/a/oABdedZ
MCQs: Related to DS, Algo, OS, DBMS
Solution to Building offices?

IITD (Technologist Profile)

3 coding and 10 MCQ. (SQL Query was also asked)
Same questions as IITG
MCQ: https://owncloud.iitd.ac.in/nextcloud/index.php/s/K5nmre7g9LxXWef

Building Offices Question Approach: It reduces to finding the number of connected subgraphs with k vertices in an undirected graph. Total number of subgraphs with k vertices will be nCk. Check whether each of these subgraph is connected using BFS/DFS. Time complexity of the same would be O(nCk * O(V+E)). Any better approach than this one?
Similar problem: https://www.codechef.com/COOK62/problems/SUBGRAPH/
I request someone with accepted solution or with maximum test cases passed to share their approach. +7

SOLUTION ANYONE to building offices???

IITK (Technologist Profile)

3 coding and 10 (MCQ + subjective)
Same questions as IITG

Jaguar Land Rover

IIT Delhi (Software Profile)

You start at the top left corner and the corner accessible to you depends upon the number stored in that place in
the grid. If :

1) Number 1 then you can only go right
2) Number 2 then you can only go down
3) Number 3 then you can in both right and down direction

The question had two parts:

1) Tell the total number of paths from top left corner to bottom right corner and the maximum sum path (defined by adding the grid's number, if the path taken was 3-2-1-1-2 the the path sum will be 9 and you had to print the maximum sum of all the paths possible)

IIT Hyderabad (3 profiles: Software, Power Electronics, Mechanical)

Platform: Firstnaukri.com (Total code should be written from scratch(including int main())), STL allowed.

PE profile
Section 1: Aptitude 20 ques in 40 mins, no negative marking
Section 2: Technical 20 ques in 40 mins, no negative marking
Section 3: Coding 3 ques in 80 mins
a. N eggs K floor building find minimum attempt to break.(100 marks)
b. t(50 marks)

- Given a 2D matrix which contains either 1 or 2 or 3. which represent

1->can move right;
2->can move down;
3->can move in both directions;
You are at the top left corner and need to reach bottom right corner.
Find total no.of possible paths. And also term adventure is defined as the sum of all the values in the path. You need to maximize the adventure and return "total no.of paths%1e9+7 and adventure".

c. Roman Numeral to integer(1 to 3999). (25 marks)

// Mech had same pattern, software had apti+coding only.
//what were the constraint for N and K in egg drop puzzle(Q.a)?? N < 40, K < 50
//Technical MCQs were from which topics??IIT H Guys please reply?https://www.geeksforgeeks.org/m-coloring-problem-backtracking-5/
//**CAN SOMEONE PLEASE TELL THE TOPICS OF TECHNICAL QUESTIONS FOR PE PROFILE - PLEASE HELP**

IIT Roorkee

((3 profiles: Software, Power Electronics, Mechanical)
Platform: Firstnaukri.com (Total code should be written from scratch(including int main())), STL allowed.

Section 1: Aptitude 20 ques in 40 mins, no negative marking
Section 3: Coding 2 ques in 80 mins

1. Given a base.
Calculate the largest number(in base 10) less than 1500000 which is a factorion number in base b.
e.g. base=11, 26 is a factorion because 26 in base 11 is 24 and 2! + 4! = 26.
Does anyone have solution of this question?? give answer??+1
2. Similar to hotel scheduling(IB:https://www.interviewbit.com/problems/hotel-bookings-possible/)

IIT KANPUR (3 profiles: Software, Power Electronics, Mechanical)

Were allowed to choose any two of the above profiles for the test
Platform: Firstnaukri.com (C,C++,Python,Java allowed)

Mechanical Profile or Mechanical and Software Profile: Common test for both
Section 1: Aptitude: 20 questions 40 minutes no negative marking
Section 2: Technical: 20 questions 40 minutes no negative marking (Questions were from solid mechanics, basics of design (Von-Mises and Tresca criterion), IC engines,etc)
Section 3: Coding: 2 questions 80 minutes

1. Given a year, find out whether it is a leap year or not.
2. Given an array of N elements. Print 1 if the array can be broken into K non-empty sub-arrays subsets?+1 such that sum of each sub-array should is same otherwise print 0.
e.g. array = {1,2,4,5,6} and K=3
Output : 1
It can be broken into K non-empty sub-array with same sum i.e. {1,5} {2,4} {6}

Will backtracking solution pass? No, Constraints were 1<=n,k,a[i]<=100
contiguous
In the second question is it subset or subarray, please clarify?+2

subarrays. Which one came in the test?

IIT GUWAHATI (3 profiles: Software, Power Electronics, Mechanical)

Software Profile:
Section 1: Aptitude - 20 MCQs in 40 minutes(Each MCQ had different weightage from 2 - 5 marks, no negative marking)
Section 2: Coding - 2 questions in 80 minutes

1. https://www.geeksforgeeks.org/check-string-substring-another/(50 marks)
2. https://www.geeksforgeeks.org/m-coloring-problem-backtracking-5/(100 marks)

//**CAN SOMEONE PLEASE TELL THE TOPICS OF TECHNICAL QUESTIONS FOR PE PROFILE - PLEASE HELP**
MosFET, Control System(Check if given system is stable), Converters, Transformers

IIT (BHU) @ 20-10-2019

Jaguar LR conducted test on FirstNaukri | STL Allowed | 2 Sections | 40m+80m | Section Inter-switching Not Allowed - Sequential Sections | Coding questions same for All

Section 1 : Objective

40 MCQs majorly on Aptitude, Quant, Probability, Reasoning.
Sequential questions : Going back to previous question not allowed.
All students had different sets.

Section 2 : Coding

Q1 - Given a stream of integers, find the first positive integer that does not appear in the stream. The length of the stream would NOT be given.

Solution : Set-based solution GFG IDE
Solution : Vector-based solution GFG IDE

Q2 - Given the edges of an undirected graph and a number 'm', determine if the graph can be coloured with at most 'm' colours such that no two adjacent nodes are coloured same.

Solution : Backtracking-based solution GFG

IIT MADRAS (3 profiles: Software, Power Electronics, Mechanical)

coding:
1) given 3 numbers 4,5,6 and their occurance x,y and z respectively. (50 marks)
EX: input : x = 1, y= 1,z=1 (x,y,z are no of times the number at most occurs)
then output should be
4+5+6+45+54+65+56+64+46+456+546+465+564+645+654 = 3675
2) given an array of length n, and it is divided into k subsets such that no subset has a duplicate element. find the number of ways in which array can be divided into k subsets. (100 marks)
ex: array = {1, 2, 2} k =1 { { 1, 2},2 } is valid and {1,{2,2 }} not valid so output is 1

Publicis Sapient (DS)

IITG

20 MCQS : DBMS, Algo, ML, Probability Distribution
MCQs: {(Find 2nd, 3rd and 4th quartile of a series of numbers), (Joint Prob Density), (Time series effect of non-stationary on ARIMA), (How to reduce underfitting), (Batch size given, training size, epochs given, find execution time), …}
1 coding (in Python only)
2 ML out of which only 1 need to be done.(were using libraries like numpy, pandas sklearn allowed?) Yes
Was use of the Internet allowed for the ML section? +1

coding + ML Link: https://imgur.com/a/2vDT8Ts

Was tab switching allowed?

IIT BHU

pattern same as IITG (Time 1.5 hrs)
coding(Python only) - Given a string return a special sort of the string. Special sort of the string is defined as - take the lexicographically smallest letter as first letter of your answer then lexicographically second smallest and so on, when you cannot find any the same back in the same order find the lexicographically

Explanation of above example:-
step 0:-ansString="" ,givenString="ababyz"
step 1:-ansString="a"(lexicographically smallest remaining in the givenString) , givenString="babyz"
step 3:- ansString="ab"(b being lexicographically smallest after a) , givenString="abyz"
step 4:-ansString ="aby" , givenString="abz"
step 5:-ansString="abyz",givenString="ab"
step 6:-ansString="abyzb"(b being lexicographically largest after z),givenString="a"
step 7:-ansString="abyzba",givenString=""
return ansString

eg:- abbabb
ans:-ababbb

2 simple ML questions were there out of which one has to be attempted
one was simple linear regression (don't remember the other one)
use of numpy , Pandas , and sklearn allowed.

Any idea about second question of ML?

IIT Roorkee

same pattern as IITG (1.5 hours)
20 MCQ : SQL (Use of LPAD Function, Difference between UNIQUE, DISTINCT AND DIFFERENT Functions), Probability (Calculate MLE, and a question on Normal distribution,), Algos (Lasso ,Ridge, elastic net) (ex : if the training data is 10GB and your computer ram is 4GB , how will you train ?, ex: if features are too many and highly correlated, which algo you will you use ?)
Coding 1 question(PYTHON) : Concatenate 3 string in lexically increasing ordeR
2 ML Question : Q1 : https://www.chegg.com/homework-help/questions-and-answers/given-humidity-data-days-spanning-startdate-enddate-inclusive-predict-hourly-humidity-data-q34232880

JPMC (SDE)

what was the plateform? HACKERRANK

IITG

1HR
Q1. Given a 2D matrix. of n rows and columns. Each cell(pixel) has a value from 0-255. The first n/3 rows represent colour red, next n/3 rows colour green and then n/3 row represent blue.
You have to output a single 1-d array containing 8bit binary value for each pixel.

Example: 1 2 3
4 5 6
7 8 9
10 11 12
13 14 15
16 17 18
Here first 2 rows represent Red,THEN GREEN THEN BLUE
output= [1,7 ,13,2,8,14,3,9,15,4,10,16 and so on]
Note in output you have to give binary representation for each number for example for 1: 00000001 for 7:00000111
This just boils down to converting a decimal to binary right ?

Q2:
Given a list of transaction
GOOGL BUY 500 784
GOOGL SELL 200 540
AMZN SELL 300 200

Each row represents a transaction. The first column tells company name, second column tells type {BUY,SELL} Third column quantity of stock to buy or sell and fourth column tells the price.

You have to execute the transactions.
A BUY transaction can only be matched with SELL transaction of the same company and vice versa if price of BUY >= price of SELL
if there are multiple SELL transaction for BUY then choose the SELL transactions having minimum price.
if there are multiple BUY transactions for SELL then choose the BUY transactions having maximum price.

You need to find number of shares which were left after completing all transactions
GOOGL BUY 500 784
GOOGL SELL 200 540
GOOGL SELL 200 550
AMZN SELL 300 200

Here For 1st transaction will be matched with 2nd.(not third)
after this
GOOGL BUY 300 784
GOOGL SELL 200 550

So ans is 300+100= 400
Approach: for every company make a min heap and a max heap.
insert all sell transaction in min heap and all buy transaction in max heap.
while (both heap not empty){
s=pop min heap
b=pop max heap
if(s.price> b.price){
break;
}
q= min(s.quantity, b.quantity)
s.quantity -= q
b.quantity -=q
if quantity is 0
discard
min_heap.push(a)
max_heap.push(b)
}

IITR

Same Problems as in IITG
someone with screenshot of questions????
Retest: https://www.geeksforgeeks.org/shortest-distance-two-cells-matrix-grid/
https://www.geeksforgeeks.org/subset-sum-backtracking-4/

IIT KGP

2 questions, 60 minutes.

1st question (40 marks) Same as IITG Q1. That is a simple bit manipulation question right ?

2nd question (60 marks):
You are a test setter. Given an array containing difficulty level of problems.

Return the number of ways to set a test given the following constraints:

1.Minimum 2 problems must be selected.
2.Total difficulty must be at least l and at most r.
3.Difference between most difficult problem and least difficult problem must be at least x. (or at most x, can't recollect) (l, r, x given)
Were all the elements unique ? Were any duplicate elements present ?

Backtracking solution passed all test cases. Generate all subsets and apply conditions on each

IITK

1. Sudoku solver (using backtracking)

IIT BHU

Drive link - JPMC IIT BHU

Army has N no. of soldiers ranked by their strength. They need to a deploy a group of strength S on a particular location. Captain wants to know in how many ways a group having total strength of S can be formed.

You have to complete the ***formSoldierGroups*** function having the parameters as described below.

Input:
First argument N to the function is number of total soldiers
Second argument is an integer array denoting strength of each soldier
Third argument S is an integer denoting required strength of the group.

Output:
Return an integer K, denoting number of ways the group can be formed. Return 0 if no group is possible.

Sample 0
Input:

S1	S2	S3	S4	S5
4	12	5	9	12

S = 9
Output:
2

Sample 1
Input:

S1	S2	S3	S4	S5
3	7	5	9	12

S = 12
Output:
3

YOUR ANSWER

We recommend you take a quick tour of our editor before you proceed. The timer will pause up to 90 seconds for the tour. Start tour

JPMC Campus Test-IIT-BHU-2019 17m to test end Rahul Kumar

Sudoku

Sudoku is logic based combinatorial number placement puzzle. In this problem we have a 9x9 grid where each cell contains a single digit.
Following are the rules for the puzzle:
1. Every cell must contain only one digit x with value between 1 and 9. (1<=x<=9)
2. Every row must uniquely (no repetition) contain digits between 1 and 9.
3. Every col must uniquely (no repetition) contain digits between 1 and 9.
4. Every 3x3 box must uniquely (no repetition) contain digits between 1 and 9.

The puzzle is deemed to be solved if and only if it satisfies all of the above conditions from 1 to 4, otherwise it is unsolved.
In the given grid some of the digits are missing these are marked as 0 so you need replace 0 with valid digit between 1 and 9 to solve the problem.

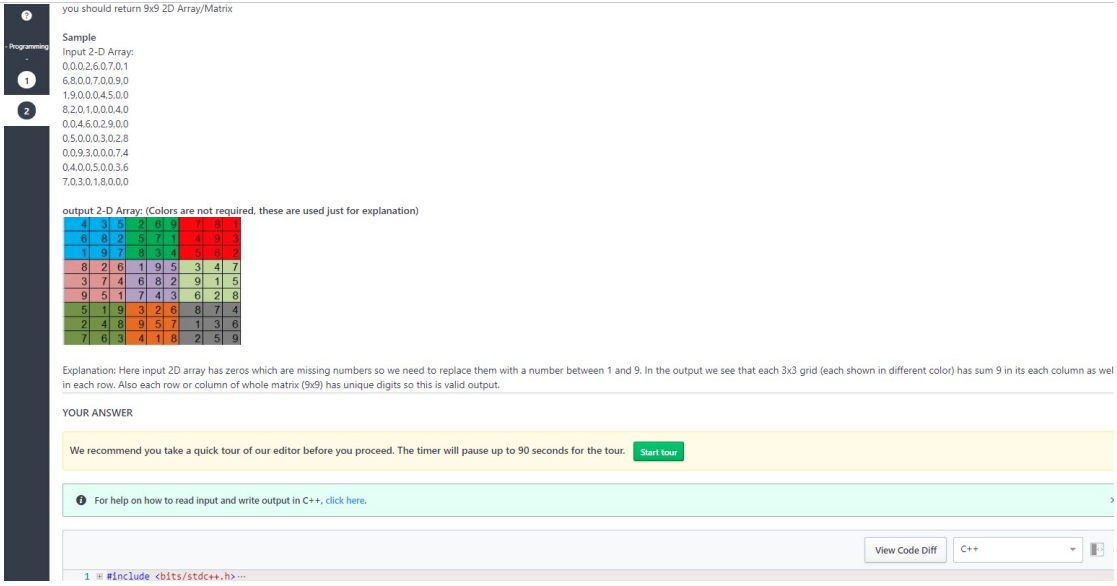
Complete the give function ***solveSudoku*** to solve a given puzzle.

Input:
9x9 2D Array/Matrix whose each element is an integer between 0-9 where 0 means missing number.
output
you should return 9x9 2D Array/Matrix

Sample
Input 2-D Array:
0,0,0,2,6,0,7,0,1
6,8,0,0,7,0,0,9,0
1,9,0,0,0,4,5,0,0
8,2,0,1,0,0,0,4,0
0,0,4,6,0,2,9,0,0
0,5,0,0,0,3,0,2,8
0,0,9,3,0,0,0,7,4
0,4,0,0,5,0,0,3,6
7,0,3,0,1,8,0,0,0

output 2-D Array: (Colors are not required, these are used just for explanation)

4	3	5	2	6	9	7	8	1
6	8	2	5	7	1	4	9	3
1	9	7	8	3	4	5	6	2
8	2	6	1	9	5	3	4	7
3	7	4	6	8	2	9	1	5
9	5	1	7	4	3	6	2	8
5	1	9	3	2	6	8	7	4
2	4	8	9	5	7	1	3	6
7	6	3	4	1	8	2	5	9



JPMC QUANT

IITKGP

30 mcq of quant(very hard)+output of c - 35 minutes (Marking Scheme +1, -0.25)
2 codes different for everyone - 45 minutes
1- Longest AP
2- Count unique subsequences of string
3- max sum non adjacent elements
4-Length of shortest path in maze
5- Next Permutation of number (Input-number given in a string form)
6- Trimming Binary Search Tree (Difficulty - Easy)
- Given binary search tree and a range (min,max), return the binary search tree
that has the values only in this range.
http://www.geeksforgeeks.org/remove-bst-keys-outside-the-given-range/

IITK

Same pattern as in KGP
Very very shitty platform (cocubes). Fuck it
Random questions from a set of questions
My set had :

1) Count unique subsequences in a string
2) min cost to reach right bottom corner of matrix from 0,0 (can move 1 step right, down or diagonally south east)

IITR

Format same as KGP
2 Coding Questions:

(MY SET)

1. same as second question from IITK
2. Maximum Subarray sum where any two adj. elements should not be in the sum.
https://www.geeksforgeeks.org/maximum-sum-such-that-no-two-elements-are-adjacent/
3. Mostly same as KGP

IITD

Same as KGP

IITG

Same as IITKGP

VISA

Platform and eligibility criteria? Hacker rank

IITK

Q1. Activity selection problem(start time and duration given. At any time only one activity can be done. Select the most number of activities.)
Q2. You are given two strings s and t. |s|>=|t| You need to determine whether t can be concatenated multiple times to obtain s. Also if this is possible to do then you need to output the smallest string x such that both s and t can be obtained from x by some number of concatenations.
Sol. Can be done using KMP
Q3 You are given three types of moves of the form '../' '../' 'x/'. These moves represent folder transitions. You are given a sequence of such moves. You need to output the minimum steps you need to take from the last location to reach the root.
Q4 You are given two numbers a and b. Determine the sum s for which maximum numbers between a and b(inclusive) have their sum of digits equal to s and also the number of times this sum s occurs. Brute force won't pass. a,b<=1e18
solution for Q4 = https://ide.geeksforgeeks.org/O3XN7ByK7J(Digit DP)

IITG

Mtech allowed
Same as IITK

IIT KGP

Q.1 Array subset. Given an array, find a minimal subset of it such that the sum of its numbers is greater than the sum of numbers in the remaining subarray. Easy Question
Q.2 Shopping Budget. Arrays of prices of jeans, skirts, shoes, etc were given, and the budget. Have to figure out no. of ways in which we can buy all the items in given budget.Eg. a=[1,2,3] b=[2,3] c=[4] d=[1,2,3] (Brute force did not pass 4/12 test cases) (Can be done using 4 sum. 2 loops for first 2 arrays and 3rd loop for rest 2 arrays. Passed all test cases.)
Is this similar to Subset sum problem Yes
Q3. Dodge the Ball. (Hard level question)////can someone tell what the problem was about? (cant be done in 1.5 hours)
Q4. Question on string where you had to first apply regex and then count number of allowed substrings. (very lengthy also string size was 10^5)

CURE.FIT

WHICH PROFILE???- SDE, IITD-Data science, App developer, Front end developer, SDE

IITK

1hr. Platform- Hackerearth. 2 coding questions

Q1. You have an array of size n, consisting of three types of characters 'a', 'b', 'c'. You need to count all the triplets of the form (p,q,r) where p is some index of 'a', q is some index of 'b', r is some index of 'c' such that (p*r)=q*q. Indexing in array starts from 1.
Note: O(n^2) will only fetch 60/100
Solution to Question 1, anyone? Urgently required, we have a test at 8??? Did this question appear again in your exam ?No
O(n) was required or O(nlogn) will also do?
Will n^1.5 work?
This can be done in O(n*log(n)*log(n)).....how?? cure
pls if anyone has the answer post it
Compute by sieve. It will run in O(n*log(n)*log(n).. can you please elaborate on you approach?

My Approach : (Correct me If I am wrong)
take three arrays : ar1,ar2,ar3
push all indices of 'a' in ar1
push all indices of 'b' in ar2

Time Complexity : O(N^2)
You can improve it to O(N*sqrt(N)) by finding the divisors for q..i think we need to find divisors of q^2?...that will eventually be O(n^2)
Can you elaborate the approach based on sieve?

Q2. A graph of n vertices is given. A source vertex s is given. You need to find the shortest path from starting from source s visiting all the other n-1 vertices and ending back at s.
1<=n<=12
Solution: dp with bitmask
Solution: backtracking passes all case
is the graph is undirected or directed ?.
Is it allowed to visit nodes multiple times??
Shouldn't the answer always be 2*(n-1) in case the graph is undirected ;)
??? Any link to solutions for question 2
I think it is similar to this one: https://leetcode.com/problems/shortest-path-visiting-all-nodes/
Isn't it TSP? Yes, It is,Yes
But in TSP every node is connected to every other node and you can visit a node once in the cycle. Is this valid in this question?
Or the question is something like the above leetcode link?

IITR

1). A series of n bulbs are in a line out of which at least k+1 are fused. A man buys a set of bulbs containing k red bulbs and a multicolour bulbs along with some white bulbs. He sits to replace the fused with k red, 1 multicolor and others with new white bulbs. How can he minimise the distance between the farthest red bulb and multicolour bulb. A string of 0 and 1 is given, where 0 denotes fused and 1 denotes working.

Input: n=7 k=2
1110100
Output: 2

Any solutions to this questions ??? ??
Any concept please highlight it here????? using sliding window, if a window contain k+1 diffused bulb, explore around its median position

2). A cat named Minerva is playing a game in the coordinate plane. She starts at (1,1) and can move by either doubling one of x, y or subtracting the greater one from the smaller { (4,1)->(3,1)}. You're given a point (x, y). Will she be able to reach the point? Output YES or NO.
0<= x,y<=3000000000 Is this limit correct?? YES

input: (3,4)
Output: YES
Explanation: (1,1)->(2,1)->(4,1)->(3,1)->(3,2)->(3,4)

Please add solution to this question. Can be solved using Euclid's Algorithm
Can you explain more

IITD

Just Another Array Problem

You are given an array of **n** numbers and you have to perform **atmost k** operations on the array. An operation consists of choosing an index from the array and adding 1 to the number on that index, you can choose the same index multiple times. Lets say after k operations a number X is repeated the maximum number of times T. Your goal is to maximise the maximum number of times a number is repeated (T) in the array after **atmost** k operations. You have to print the maximum number of repetitions T and the number X that is repeated. If it is possible that multiple numbers $X_1, X_2 \ldots X_m$ can be repeated the maximium number of times, then output the smallest of those numbers.

Constraints:
$1 <= n <= 100000$
$0 <= k <= 10^9$
$-10^9 <= a_i <= 10^9$, where $1 <= i <= n$

Input:
The first line contains two space separated integers: n, denoting the size of the array and k, atmost operations allowed.
The third line of the input contains n space separated integers a_1 to a_n.

Output:
Two space separated integers T and X, where T denotes the maximum number of repetitions possible for any number and X denotes the smallest number which can be made to repeat T times after atmost k operatons.

Sample Input	Sample Output
4 10 1 9 11 19	2 9

- He will register a few plots every day to Romil and Kanna.
- Romil gets to pick a number **k**, the number of plots he gets every day.
- As Romil selected, he will get **k plots everyday**. If there are less than k plots left, he will get all the remaining plots.
- After Romil gets his k plots, Kanna gets **10% of the remaining plots**, everyday. (If the number of remaining plots is not divisible by 10, he will get the floor of the value. For example, if 26 plots are left, Kanna will get 2 plots). If the number of plots remaining is less than 10, Kanna won't get any plots.

Romil now needs your help in figuring out what should be the minimum value of k, the number of plots he gets every day, so that he gets atleast half of the initial N plots.

Input

The first line contains a single integer **N** ($1 \leq N \leq 10^{18}$) — the initial number of plots the dealer has.

Output

Output a single integer — the minimal amount of **k** that would allow Romil to get at least half of the total plots.

Sample Input	Sample Output
11	1

IITG

1hr. Platform- Hackerearth. 2 coding questions
Mtech Allowed
codes: https://imgur.com/a/j3ITjrN

Any approach for Question 1 ? Was O(N^2) solution accepted ?

Societe Generale

IITG

If someone has photos or remembers more questions please add them
Platform: HirePro
4 sections(Each section had a separate timer):

1. Logical reasoning and Aptitude - MCQs
2. English(Sentence correction and comprehension) - MCQs
3. Computer Science(DS, OOPs, Testing, Algorithms. Some topics I remember: Heap Sort, Black and white box testing, hashing, linked list as queue, types of testing etc.) - MCQs
4. Coding(2 questions - 40 minutes, had to write code from scratch, STL was allowed: int main(), i/p and o/p as STDIN, STDOUT):
    - Given a 2D matrix first you had to make it a square matrix by adding 1's. Then you need to find the sum of all diagonal elements of this square matrix which occur exactly K times as off diagonal elements(i.e. not in the main diagonal).
      Example:
      3 2
      5 4 5 2 3 1
      1
      Answer: 5
      Input format:
      First two elements tell size of 2D matrix (m, n).
      Next m*n numbers are the respective elements.
      last line has a single number which is the value of K.
      Answer Explanation: First we make the matrix a square matrix as follows by filling the rest of the matrix with 1's:
      5 4 5
      2 3 1
      1 1 1
      Now, the diagonal elements are 5, 3 and 1. Since the value of K is 1, and 5, 3 and

Initially all the doors are locked and each door needs a different key to be opened. Sarah has all the required keys to open any of the door. Find the minimum number of doors, Sarah needs to unlock to rescue Bob and Alice out of the building. Note: You cannot cross walls. Once you open a door, you don't need to open it again i.e. you only need to unlock a door once and you can cross it as many times as you want.
Provide constraints on size of matrix.
Q1. Is the source given ?The boundary of the matrix has doors or empty paths marked through which you can enter.

IITR
Platform: Hirepro
Sections same as IITG
Coding Qns:

1. There are N countries connected to each other by roads. Some countries revolts against other countries and therefore the rest of the countries unite to defend themselves. Revolting countries will not allow to pass anyone through roads going through it. Then all the countries connected to each other by passable roads will form one group. Output the number of such groups formed and maximum size of such group. Roads are given as edges and P countries are also given who revolts.
2. There is a mxn matrix. Each cell in a matrix has some amount of cheese. Rat will start from any point on the right boundary facing towards left. It has to collect as many cheese as possible and return back to right wall but It can only take 2 left turns in the entire path. Determine the maximum amount of cheese it can collect. Constraint?

Morgan Stanley

IIT BHU @ 12/10/2019

AspiringMinds AMCAT | STL Allowed | 3 Sections | 20m+20m+60m | Section Inter-switching Not Allowed - Sequential Sections | Section-C same for All

Section A : Debugging - 20m
7 questions with codes given in the compiler
Each had to be debugged so that they produce the right desired output
Total 7 Questions : Three points as input (structs of x and y coordinates), the code should return boolean if they can be sides of a Right Triangle. 2) Three numbers as input, the code should return an int as the product of the two larger numbers of the three. 3) A number as input, the code should void print a particular pattern (Like two * in line 1, four * in line 2, so on till line n, the error in given code was improper 'for' loop).

Section B : Aptitude - 20m
10 questions on Aptitude - Mixture of two liquids, Percentage, Time & Work, Probability etc.
8 were easy. 2 were difficult, had to infer from data given in Pie Chart / Bar Graph / Sales Table and calculate.

Section C : Coding - 60m
Problem 1 : Find no. of Uncommon Elements in Two Sales Lists. 13 Test Cases out of which 11 Hidden.
Given two arrays, you need to count sum of n1 and n2 where n1 = no. of elements in the first array that don't appear in second and n2 = no. of elements in the second array that don't appear in first.
Solution Approach : Make two sets to store elements from array1 and array2 and initialise answer as len1+len2. Iterate for elements of array2 in set1 and array1 in set2 and accordingly decrease the answer.
The approach worked fine with all test cases, but more space-optimized solution can be used.

Problem 2 : Based on Topological Sort.
https://leetcode.com/problems/course-schedule-ii/
Someone please update the complete problem statement
Solution Approach : Kahn's Algorithm for Topological Sort GFG

Problem 3 : Advanced Knapsack Problem. Given 'n' products and their parameters : cost, wastage, and profit. Using each product at most once find maximum profit if maximum allowable cost 'maxc' and maximum allowable wastage 'maxw' are given.
Approach : m-dimensional Knapsack Problem Wikipedia
Someone please update the solution+3
Was 3D knapsack not working?
No one was able to pass all test cases using proper knapsack method. Some bogus method which involved sorting and selecting the product greedily passed all test cases. Can you post this solution? or proper algorithm

IIT ISM:

Same pattern as above.
Coding questions: 1. Merge two arrays to sorted form.
2. Slight variation of activity selection problem.
3. This question was very ill-framed. Some students who got 16/17 test cases passed found the maximum height in a directed graph.

IITG

Same pattern as above.

is also given. Find minimum cost to pack the order.
3. Array of cost given. You can start from 0 or 1 index and jump to the next or next+1 index. you need to traverse the complete array using minimum cost. Each index has cost you need to add it if you take that index;

Plutus Research Capital

IIT-Delhi

3 quant questions subjective and 4 coding questions in 1.5 hours

Quant

1. Find the smallest number which has 30 divisors. (30 marks)
2. let n be a 5-digit number with sum of digits being 41. What is the probability that the number is divisible by 11. (60 marks)
3. https://www.geeksforgeeks.org/puzzle-16-100-doors/ (60 marks)

Coding

1. Number of integer solutions to 3a+5b+10c = N.
   This is similar to Coin Change problem
2. An array of size n given. We had to find max((j-i)*min(arr[i],arr[j])). Here i and j are array indices
   https://practice.geeksforgeeks.org/problems/find-maximum-value/1
3. A pseudo code was given we had to code it. Something on bit operations.
4. Someone please add this question. I seem to forget it.
5. Disk of various size were given on different days we have arrange them such that maximum is at the bottom.

Eligibility and CPI cutoff???
j

Codenation

IITK

https://owncloud.iitd.ac.in/nextcloud/index.php/s/zCk3agFHce4XxBs

IITG

3 Coding question 75 min.
Profile: Software Development Engineer
Open for Mtech
Coding Question:https://imgur.com/a/GHXI4j2
solution to “No Distractions” question anyone???

Service Now

IITG

please add MCQ questions IITG guys, we have test tomorrow.
Were there different sets or were they the same for everyone? Coding same for everyone, MCQs were same for everyone but order was different
please add CTC and Branch/CPI cutoff . Branches - Circuital (CPI - 6.00)
same for everyone
Profile: Associate Software Engineer
Open for MTech
Total 90 min test.
25 Mcqs: on aptitude, data structures, automata
1 Coding: https://imgur.com/a/lQMfAj5

Was switching between sections allowed?? Yes

IIT BHU

Same Pattern as IITG,switching between sections was allowed.

Jio Saavn

IITR

Eligibility : **B.Tech** - CSE, EE, ECE
M.Tech - CSE, EE, ECE
IMSc Applied mathematics
Test duration : 60 Minutes
Platform : Interviewbit
Were there 4 questions in 1 hour? or pool of questions?

1. https://www.interviewbit.com/problems/gas-station/
2. https://www.interviewbit.com/problems/max-product-subarray/

https://www.interviewbit.com/problems/rain-water-trapped/

3. Given two particles , their initial coordinates x1,y1 , x2 , y2 and their velocities vectors in [ux , uy] , [vx ,vy]. return 1 if collision is possible else return 0.

IIT- B

Test Duration: 75 min
Platform: Interviewbit

There were 3 Questions and all questions were the same for everyone.

1. https://www.interviewbit.com/problems/burst-balloons/
2. https://www.interviewbit.com/problems/generate-all-parentheses-ii/
3. https://www.geeksforgeeks.org/longest-increasing-odd-even-subsequence/ Not exactly this but similar to this one. subsequence can be start with an odd number or an even number.

IITK
75 min, interbit, 3 coding questions

1. Longest Balanced Parentheses made from (“<”, “>”, “(“, “)”): Given a string made up of bracket characters find the length of longest string which is balanced.
2. https://www.geeksforgeeks.org/minimize-the-maximum-difference-between-the-heights/
3. https://www.geeksforgeeks.org/count-smaller-elements-on-right-side/

PhonePe

IITR

Eligibility : **JEE ALL**
Test duration : 90 Minutes
Platform : DoSelect

Anybody knows solution of median problem?+1
https://atcoder.jp/contests/agc020/tasks/agc020_c
Similar to this problem: https://www.geeksforgeeks.org/find-distinct-subset-subsequence-sums-array/
Maintain the number of occurrences of that sum and then find median
3. Given a string consisting of 'A', 'B' & 'C', you have to replace all occurrences of 'ABC' with 'BCA' and find the number of times it is possible to do the operation.For ex - Given 'ABCABC' -> 'BCAABC' -> 'BCABCA' -> 'BCBCAA'. 3 operations can be made.
4. Given a pyramid consisting of bricks numbered from 1 to N. Every level has bricks 1 more than the level above. Now if a brick is removed. We had to find the sum of all the bricks that will fall.
Ex -

```
      1
    2   3
  4   5   6
  7   8   9   10
```

If you remove brick 9, bricks 5,6,2,3,1 will fall. Ans is sum of 9+6+5+3+2+1 = 26.
What is the input format? Just N?**Constraints on N**? Input was an integer denoting the brick removed.

IITG

Mtech Allowed
Test duration : 90 Minutes
Platform : DoSelect
Did anyone knows soln to H data centers problem? +1
Reply asap
Questions: https://imgur.com/a/QYD2bhJ

Squarepoint Capital

IITG `

Profile: Graduate Software Engineer
Eligibility: All B.Tech.
Test Duration: 90 minutes
Test Platform: HackerRank
how many questions were there in one set?

2 MCQs (Questions were different for all) (From which topic?)

5 Coding Questions(Questions were different for all)
1. Given a binary string, count the number of substrings with the following constraints:`
   a. All 1s and 0s are contiguous(Ex. 00011, 11000)
   b. The string has equal number of 1s and 0s.

Ex. Input: "001101" Output: 4 (Explanation: "01", "10", "01" and "0011")

2. You are given two numbers a and b. Determine the sum s for which maximum numbers between a and b (inclusive) have their sum of digits equal to s and also the number of times this sum s occurs. Note: Brute force won't pass. a,b<=1e18.
(Hint: See https://www.geeksforgeeks.org/digit-dp-introduction/)
(Solution : https://ide.geeksforgeeks.org/O3XN7ByK7J) (Digit DP)
Someone please provide the solution for this question, it has been asked twice or thrice+3

3. Find the minimum number of moves needed to sort an array such that all even numbers occur before odd numbers. A move is defined as swapping of two elements of the array.
Ex. Input: [3 5 4 6] Output: 2 (Explanation: Swap 3 and 6 and Swap 4 and 5). Note: Both [6 4 3 5], [4 6 5 3] etc. are acceptable.

4. https://www.geeksforgeeks.org/making-elements-distinct-sorted-array-minimum-increments/

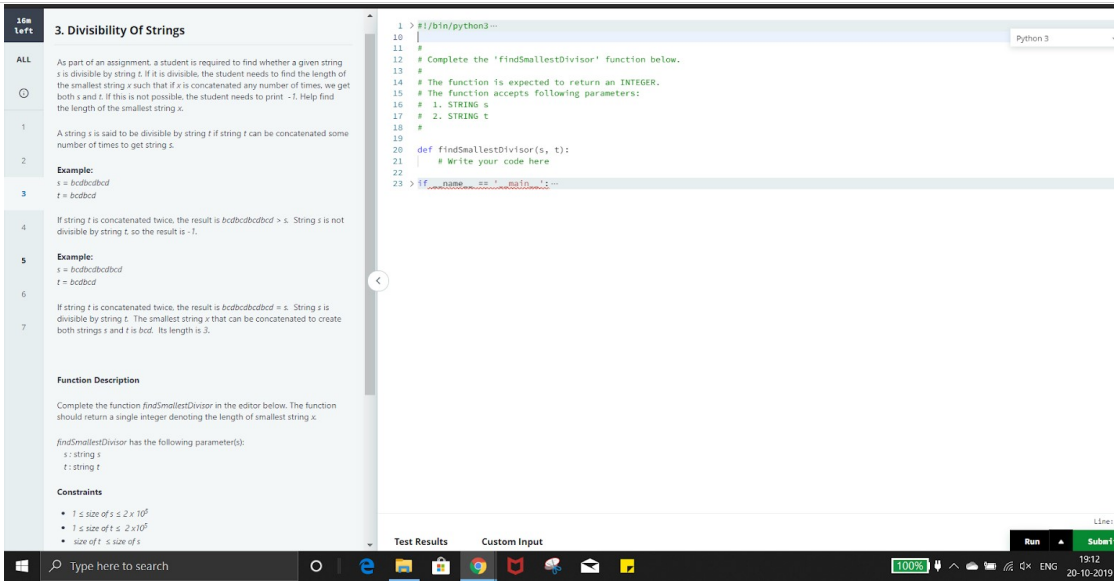
5. Given Prefix sum matrix, obtain the original matrix. https://www.geeksforgeeks.org/prefix-sum-2d-array/

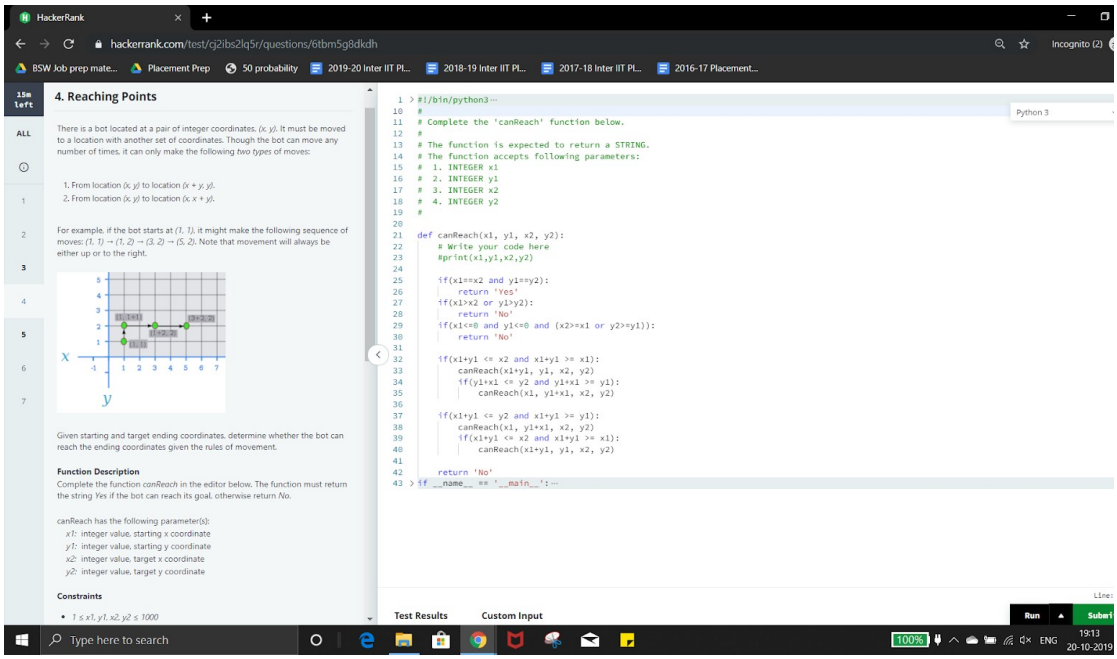
IITD

Same as IITG

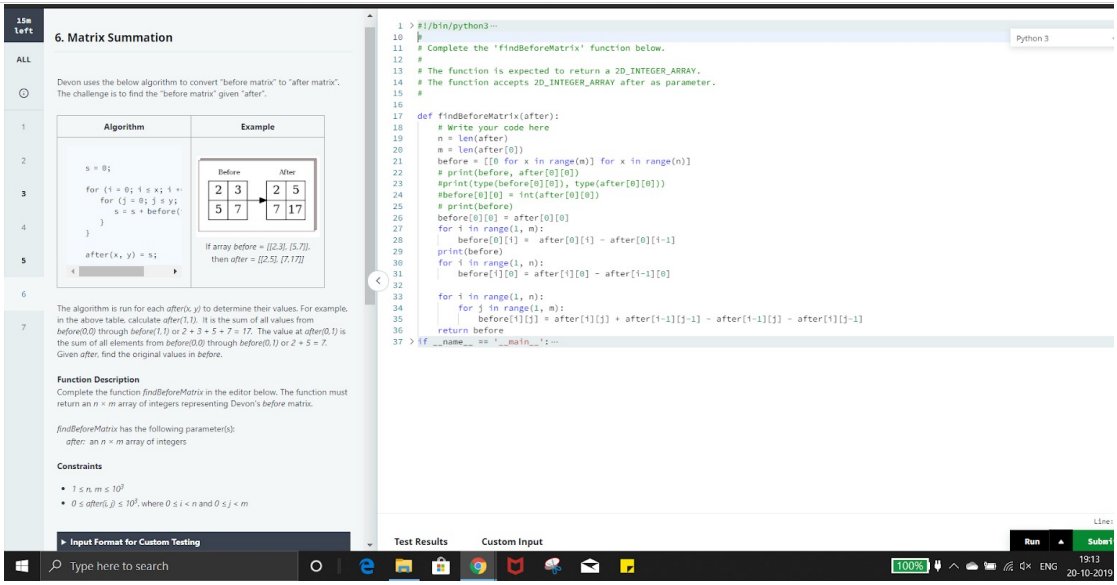
All questions different for everybody
2 MCQs
5 Coding questions (Easy

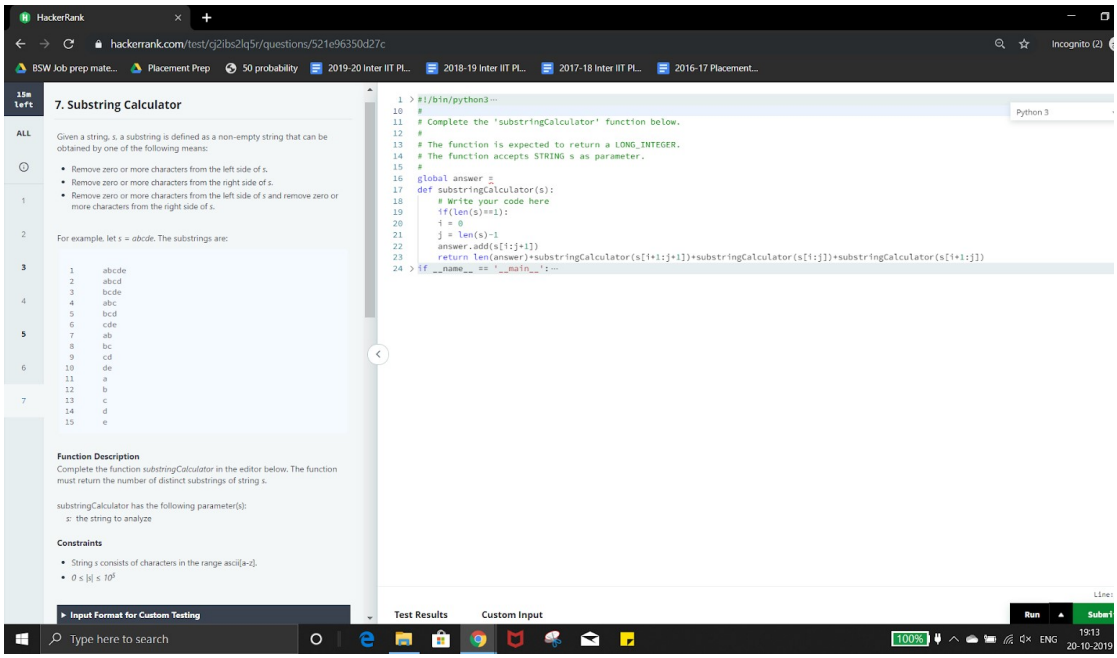
to Medium Difficulty)





Someone has deleted this question. Hence adding it again.
n m e





IIT R

All questions different for everybody

2 MCQs 5 Coding questions

Most of the questions are same from the above bucket

1. Given string containing 'l' and 'r' and two values x and y; you have to find the number of subsequences of given string to reach y from x; Here l means decrement by 1 in x and r means increment; Constraints on length of string
2. Given two arrays A and B. x + y = A[i], x xor y = B[i]. Find minimum value of x for every i.If no such x exist return 0. Length of array <= 50, A[i], B[i] <= 10^15.
3. https://leetcode.com/problems/special-binary-string/
4. https://www.geeksforgeeks.org/number-groups-formed-graph-friends/ (Variation of this question)

https://www.careercup.com/question?id=6229105402970112

Trell

IIT Kanpur

https://drive. .com/drive/folders/1U9ohYUjYbLWebBOap7nPXa063ShdJkhw?fbclid=IwAR3-wDSYJ7nZt7IKiU9QmjBqoXAUbF-pYtgy-xHtUv5X6gzVbfii_gn2NoM
(Not mine, i took this from the FB group and pasted it here. Possibly that guy doesn't have edit access to this doc)

Oracle

Did anyone do screen recording?

IITG

Pattern same as that at IITD.

IITD

It was visiting for Server Technology (Bangalore, Hyderabad, Noida) and OFSS (Pune, Kochi) Profile. There were different sections which had questions from DBMS concepts and OS concepts. There was aptitude section, logical reasoning, english comprehension and many more such questions which are part of CAT syllabus. No coding questions. Every section was timed and no negative marking was there. You can skip a lengthy question which you can re-attempt at last if you have time for that section after visiting each and every question. There were multiple sets.
Were there any coding questions or only MCQs? Read the above paragraph carefully!!!
Which DBMS concepts? Transaction/concurrency or queries? Queries

IITR PLEASE ADD SOME QUESTIONS OF ORACLE SCREENSHOTS OR SOMETHING

Bounce

IIT BHU

Hackerrank. 20 MCQs + 2 coding in 1 hour. Switching sections allowed.

MCQs:

- Lot of questions from DBMS theory - transactions(commit, rollback), Normal forms, Functional dependency simplification, No. of Primary keys
- OS - which one shows Belady anomaly - (FCFS or LRU), Thrashing, Bankers algo, Deadlock prevention, deadlock avoidance
- Quicksort worst case time complexity when a pivot is chosen such that both left and right subarrays have at least 1/5th elements
  Options 1. T(n) <= T(n/5) + T(4n/5) + n 2. T(n) <= 2 T(n/5) + n 3. T(n) <= 2 T(4n/5) + n
- Java OOPS, try, catch, finally block.

Coding1: You have a set of flasks with certain markings at different levels and you have a set of requirements by customers telling you how much quantity they need. Since the markings are not continuous, you need to fill the container upto the equal or next highest marking, i.e, the container/flask must be filled to a level greater than or equal to the requirement. Every flask has different markings. You need to return the flask which will lead to minimum loss. (filling it higher than the requirement results in loss). In case of tie, return the flask with least serial number.
Example- Requirement = [2,4,7]

Flask 1 = (2-2) + (5-4) + (5-7) = 2 loss
Flask 2 = <cannot be used to satisfy third requirement>
Flask 3 = (7-2) + (7-4) + (7-7) = 8 loss
Thus the answer would be flask 0

Coding2: Predators problem(**JUNGLE BOOK - NFRENCE LABS IIT M**) (repeat from somewhere in the doc) http://prochal.com/2019/06/the-jungle-book/

Intel

IIT KGP

Platform: HirePro
For Software Profile: 45 Gate Level Questions in 35 Mins, 1(around 15 questions) Aptitude Section for 25 Mins, 1 coding question for 30 mins
Switching between sections is not allowed.
Coding question was of Hard Level, difficult to do in 30 mins.
Question: There is a rectangular classroom and students are sitting in it. Some students are interested in playing chess. 0 denotes students interested in playing chess, 1 denotes students not interested in playing chess. A student can only play chess with its neighbours. Neighbour of a student{i,j} are students who are at locations {(i+1, j), (i, j+1), (i-1,j), (i,j-1)}.You have to find maximum number of pairs that can play chess.
Example:
n=3,m=3

Maximized formation:(3 pairs)
(0 0 0)
(0 1 1)
(1 0 0)

Not maximized formation:(2 pairs)
(0 0 0)
(0 1 1)
(1 0 0-)

constraints: 1<=n,m<=500

If anyone finds any solution or approach please share. (Brute force DFS will give TLE)
It was the most difficult question for 30 minutes**

Maximum Bipartite Matching? Seems So "yes"
Can someone please provide the solution?

IITD

Same pattern as mentioned above.
Code: Part A: Find out nodes which are at a distance of 2 hops from a given source node. Part B: Find the product of nodes which are connected to greater than or equal to 2 nodes. Constraint was that you should not consider the source node of part A while finding these nodes.
Note: Copy paste doesn't work in hirepro editor.

IITG

Same pattern as IITKgp
Coding: https://imgur.com/a/4sPFW4i

OLA (SDE and RE)

IIT D

2 hours Test-4 Coding Questions (Java,C/C++,Python allowed,other languages were also allowed)
1) given a string, count the occurences of the distinct characters in it and form another string in relative order these distinct characters appeared.
2) E.g: "occurrences" will give "o1c3u1r2e2n1s1"ha

```
void generate(node x){
        insert x in the array
        visited[x]=true
            for child in adj_list of node:
            if (child not visited)
                generate(child)
        insert x in array
```

X is inserted in array twice, Is it correct?

4) Laxman DBMS:
The Table was of form ID | Username | Rides
Implement a DBMS which should be able to perform given set of instructions:
b) SELECT* Should return all entries in the table Sorted by ID
c) SELECT* from Rides such that Rides>555 : Should Print all the entries with number of Rides greater than 555
d) INSERT (ID,Username,Rides) : Can be a new entry of update of existing ID
e) Other Functions were also to be implemented (Pretty much like standard SQL queries)
Can be done using self-balancing Trees
You just had to write SQL queries or the functions implementing them on your own? implement this function
How to do this ? Make self balanced trees that have log(N) update and log(N) insertion time or use hashing with collision resolve to have O(1) insertion and removalDid your test cases pass?

5) LOG FILE:
Ad-hoc questions. Read given lines every pair of line is like
STARTED operation1 -----some details----
COMPLETED response message execution time----other details
You have to tell:
i) Total number of operations executed
ii) Busiest Hour (Hour of request was given in started line,24 Hour format)
iii) Least responsive operations (with highest average execution time)
iv) Number of Distinct Operation carried out
v) Number of Distinct Response messages received

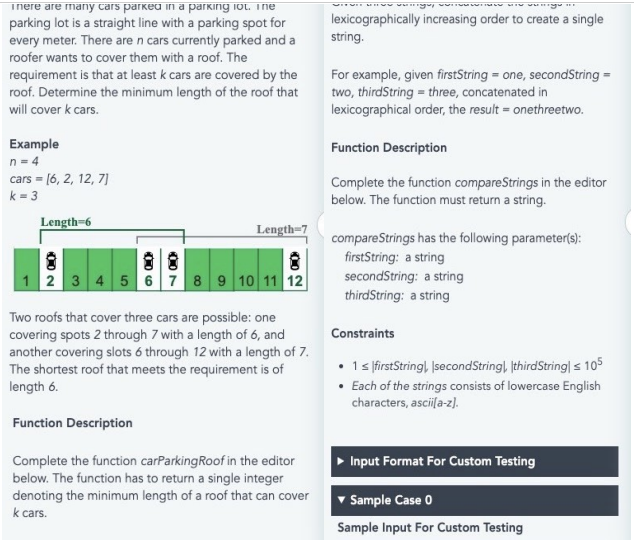
WHAT IS THIS ABOVE QUESTION ? ??? CAN SOMEONE PLEASE EXPLAIN THIS? +1
We had some lines of code of the form:
STARTED GET'\ride' for https://…… 13:10:10
COMPLETED OK in 246ms -----some other useless details----
(and so on we will get input from console)
Now each operation is STARTED-COMPLETED pair..so you had to count how many operations you executed
Next GET'\ride' is a type of operation so you had to count how many such distinct types of operation you encountered
OK is the response message similarly there were other response messages and you had to count all distinct response messages
246 ms is the response time for GET'\ride' operation and hence you had to output the operation having highest response time among all operations
This operation was executed at 13:10:10 o'clock and hence you had to output the busiest hour (Just the hour like if ans was [10-11) you'd output 10 like that
What about APM profile? APM Test will be held at a later date.
Were the questions same for both Research and SDE profile? YES

IIT M

Difficulty: Moderate
3 questions. (1.30 hrs)

1) BFS
2) Sliding window in an array to find min distance between k contiguous elements.
3) lexicographic sort of 3 given strings
4)
a) simple string compare function with sort() works!

In the second question it seems to me that sorting and checking ans = min(a[i], a[i+k-1])+1; (for all i<n-k) will work. Please correct if wrong!



There are many cars parked in a parking lot. The parking lot is a straight line with a parking spot for every meter. There are *n* cars currently parked and a roofer wants to cover them with a roof. The requirement is that at least *k* cars are covered by the roof. Determine the minimum length of the roof that will cover *k* cars.

Example

n = 4
cars = [6, 2, 12, 7]
k = 3

Two roofs that cover three cars are possible: one covering spots *2* through *7* with a length of *6*, and another covering slots *6* through *12* with a length of *7*. The shortest roof that meets the requirement is of length *6*.

Function Description

Complete the function *carParkingRoof* in the editor below. The function has to return a single integer denoting the minimum length of a roof that can cover *k* cars.

lexicographically increasing order to create a single string.

For example, given *firstString = one*, *secondString = two*, *thirdString = three*, concatenated in lexicographical order, the *result = onethreetwo*.

Function Description

Complete the function *compareStrings* in the editor below. The function must return a string.

compareStrings has the following parameter(s):
firstString: a string
secondString: a string
thirdString: a string

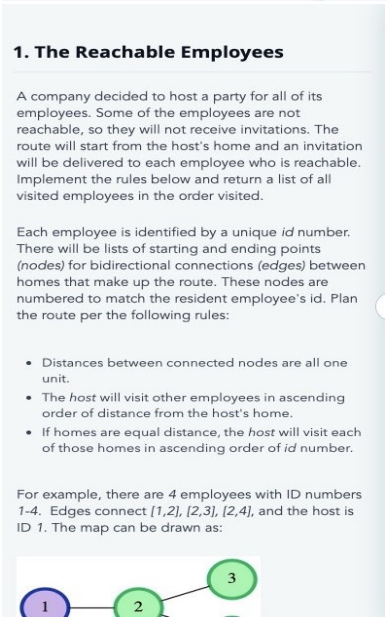
Constraints

- $1 \leq |firstString|, |secondString|, |thirdString| \leq 10^5$
- *Each of the strings* consists of lowercase English characters, *ascii[a-z]*.

▶ **Input Format For Custom Testing**

▼ **Sample Case 0**

Sample Input For Custom Testing



1. The Reachable Employees

A company decided to host a party for all of its employees. Some of the employees are not reachable, so they will not receive invitations. The route will start from the host's home and an invitation will be delivered to each employee who is reachable. Implement the rules below and return a list of all visited employees in the order visited.

Each employee is identified by a unique *id* number. There will be lists of starting and ending points *(nodes)* for bidirectional connections *(edges)* between homes that make up the route. These nodes are numbered to match the resident employee's id. Plan the route per the following rules:

- Distances between connected nodes are all one unit.
- The *host* will visit other employees in ascending order of distance from the host's home.
- If homes are equal distance, the *host* will visit each of those homes in ascending order of *id* number.

For example, there are *4* employees with ID numbers *1-4*. Edges connect *[1,2]*, *[2,3]*, *[2,4]*, and the host is ID *1*. The map can be drawn as:

IIT KGP

Same as IIT D. All four questions were same.

IIT BHU

Ola IIT BHU

Harness

IITD

Coding Question:

1. Easy Ad-hoc Problem question??
2. https://imgur.com/a/7aL2Ggx

This is solvable using simple bipartite checking right??.
NO. Need to find vertex cover using dp.
Can somebody please provide approach to solve it?+1
https://leetcode.com/problems/binary-tree-cameras/

Eligibility ?

IITG

Mtech Allowed
CPI: 7.0
1 hr Coding test on Hackerrank
2 Coding Ques. and 10 MCQs on OS/Networks

Coding ques: https://imgur.com/a/bZMQrMl

IITK

Branches allowed : Open for cse, ee, mth. Mtech allowed
1 hr test including 2 coding questions and 10 mcqs on OS and networks
Coding Ques 1 : You have a die which you have to roll N times. for each i in [1,6], rollMax[i] is given. eg: if rollmax[2] = 3 then you cannot roll 2 consecutively more than 3 times. You have to return the number of distinct sequences which can be formed by rolling the die N times following all the restrictions on each rollmax[i].

Coding Ques 2 : Image Matching Question. You are given 2 binary matrices. Each of them will have some connected components made of 1 bits (possible movements : up, down, right, left). You have to return the number of exactly matching components. eg :

1	0	0	0
1	1	0	0
1	0	0	1
1	0	0	1

1	0	0	0
1	1	0	0
1	0	0	1
1	0	1	1

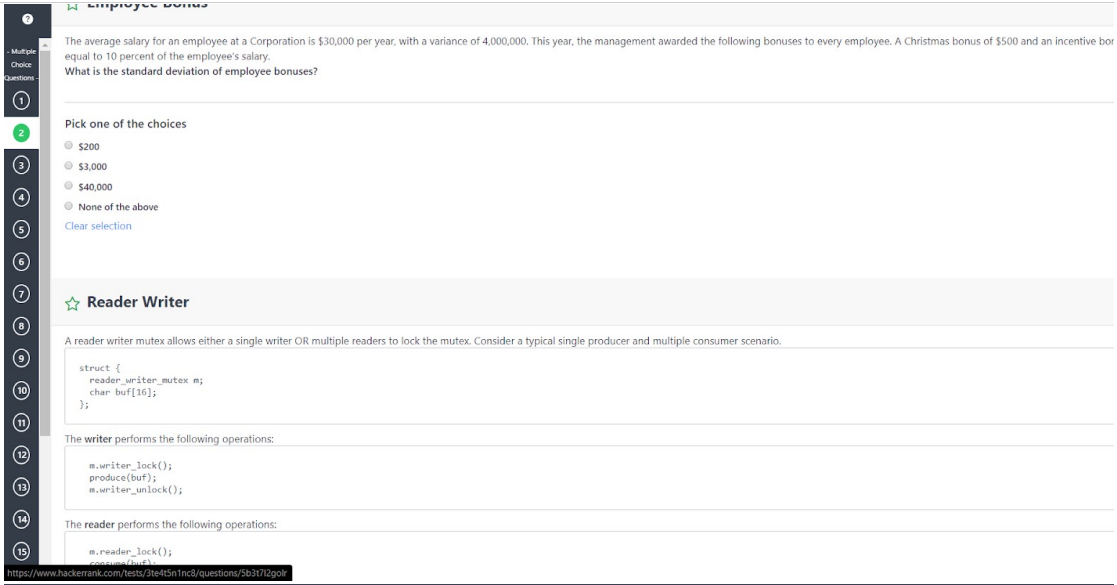
Here the green component is matching exactly however the orange one is not. You have to return the count of matching components (1 in this case).
I would recommend practicing this question because this exact question was also asked in Dunzo and Alphagrep this year.
Vector of pair for every connected component and check for equal vectors??

IITR

https://imgur.com/a/cXYVv7I
with solutions

APT Portfolio

IIT Delhi



The average salary for an employee at a Corporation is $30,000 per year, with a variance of 4,000,000. This year, the management awarded the following bonuses to every employee. A Christmas bonus of $500 and an incentive bor
equal to 10 percent of the employee's salary.
What is the standard deviation of employee bonuses?

Pick one of the choices

- $200
- $3,000
- $40,000
- None of the above

Clear selection

Reader Writer

A reader writer mutex allows either a single writer OR multiple readers to lock the mutex. Consider a typical single producer and multiple consumer scenario.

```
struct {
  reader_writer_mutex m;
  char buf[16];
};
```

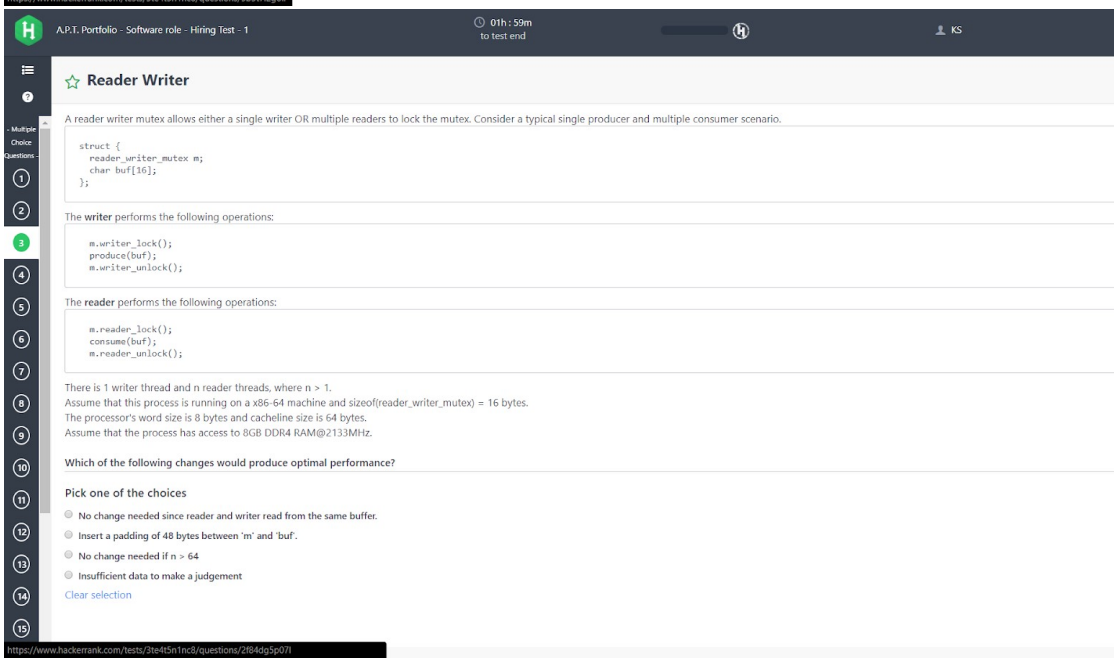
The **writer** performs the following operations:

```
m.writer_lock();
produce(buf);
m.writer_unlock();
```

The **reader** performs the following operations:

```
m.reader_lock();
consume(buf);
```

https://www.hackerrank.com/tests/3te4t5n1nc8/questions/5b3t7l2golr



A.P.T. Portfolio - Software role - Hiring Test - 1 01h : 59m to test end KS

Reader Writer

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```
struct {
  reader_writer_mutex m;
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};
```

The **writer** performs the following operations:

```
m.writer_lock();
produce(buf);
m.writer_unlock();
```

The **reader** performs the following operations:

```
m.reader_lock();
consume(buf);
m.reader_unlock();
```

There is 1 writer thread and n reader threads, where n > 1.
Assume that this process is running on a x86-64 machine and sizeof(reader_writer_mutex) = 16 bytes.
The processor's word size is 8 bytes and cacheline size is 64 bytes.
Assume that the process has access to 8GB DDR4 RAM@2133MHz.

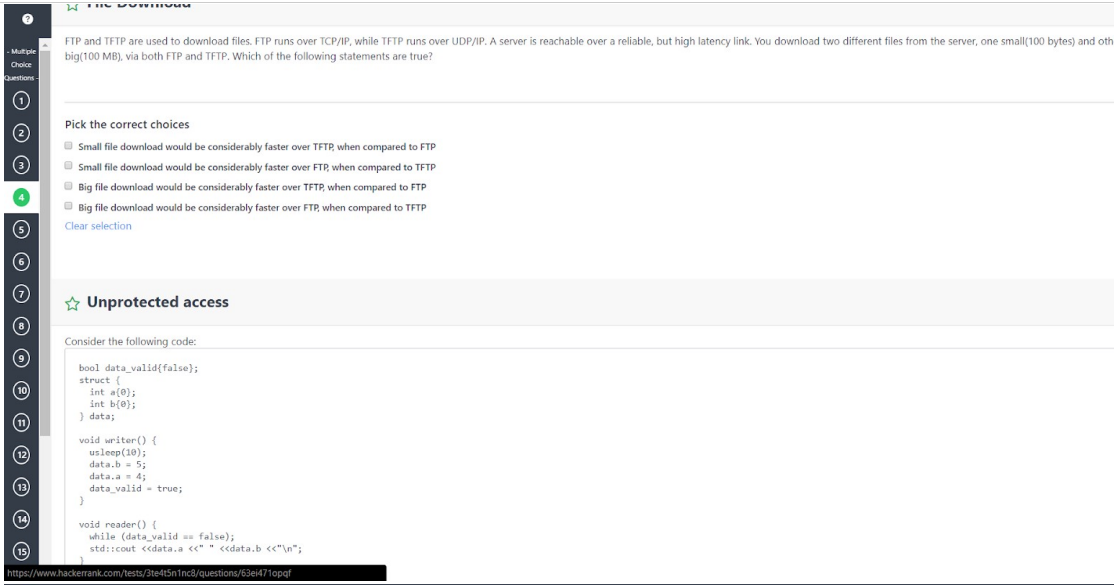
Which of the following changes would produce optimal performance?

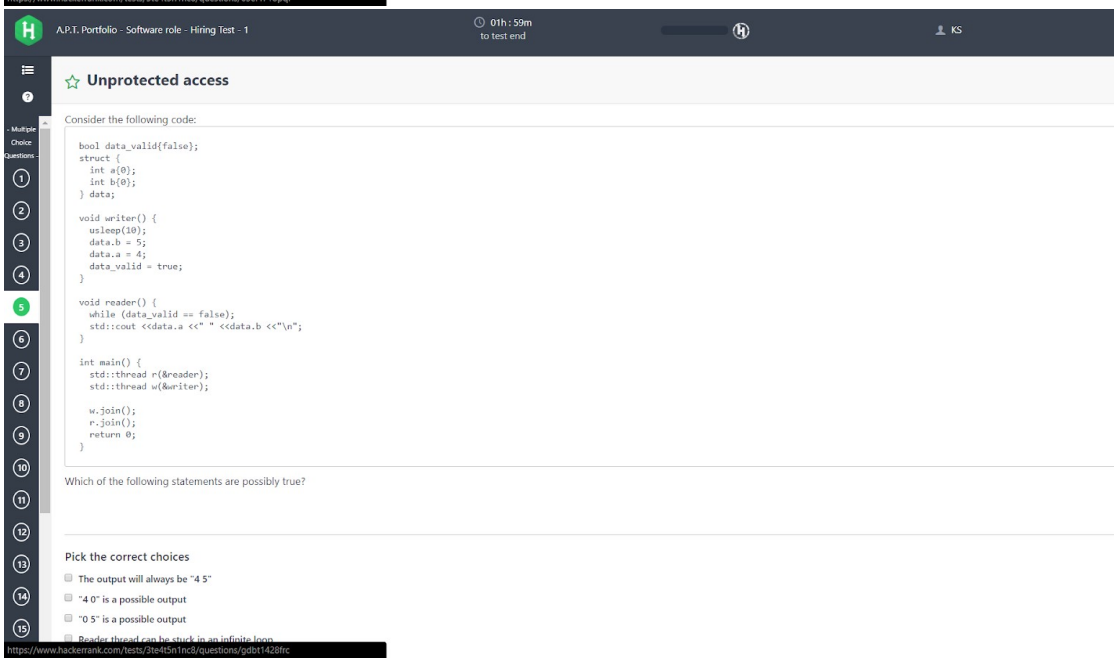
Pick one of the choices

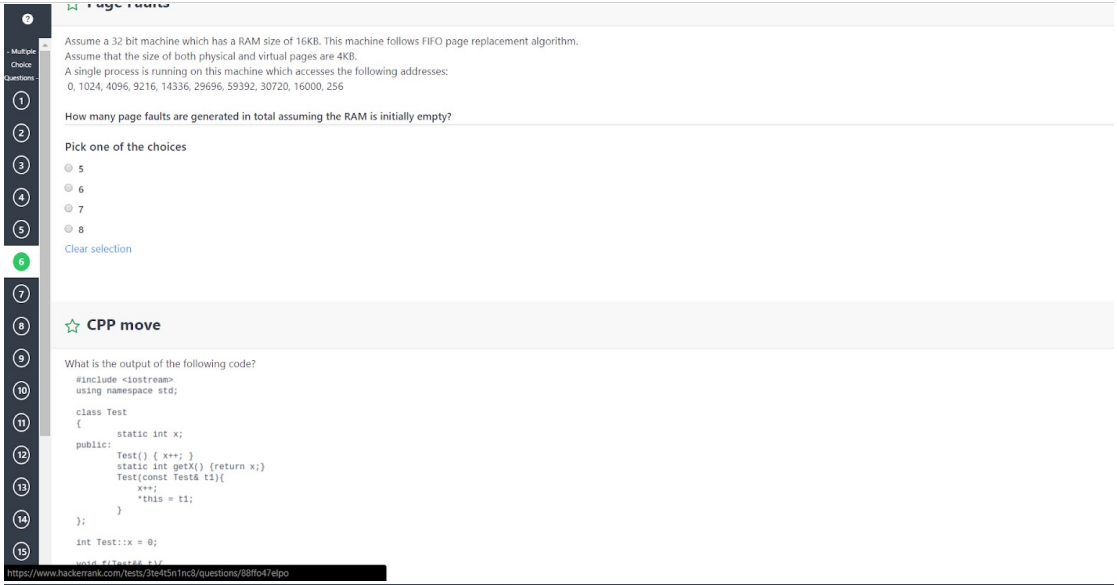
- No change needed since reader and writer read from the same buffer.
- Insert a padding of 48 bytes between 'm' and 'buf'.
- No change needed if n > 64
- Insufficient data to make a judgement

Clear selection

https://www.hackerrank.com/tests/3te4t5n1nc8/questions/2f84dg5p07l







Assume a 32 bit machine which has a RAM size of 16KB. This machine follows FIFO page replacement algorithm.
Assume that the size of both physical and virtual pages are 4KB.
A single process is running on this machine which accesses the following addresses:
0, 1024, 4096, 9216, 14336, 29696, 59392, 30720, 16000, 256

How many page faults are generated in total assuming the RAM is initially empty?

Pick one of the choices

- 5
- 6
- 7
- 8

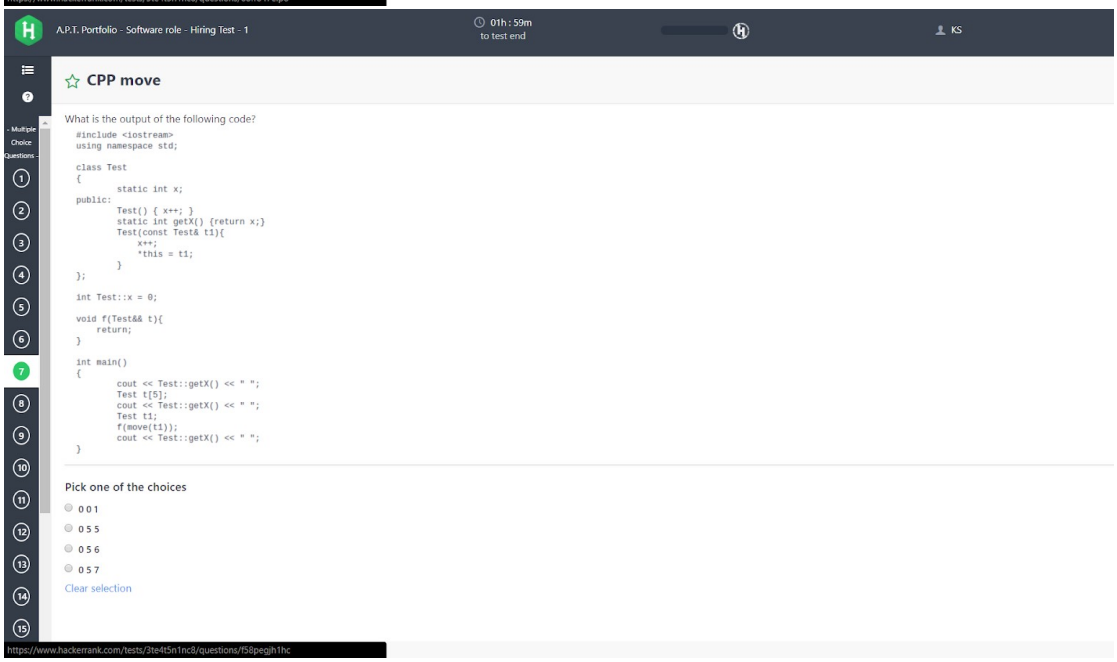
Clear selection

☆ CPP move

What is the output of the following code?

```
#include <iostream>
using namespace std;

class Test
{
        static int x;
public:
        Test() { x++; }
        static int getX() {return x;}
        Test(const Test& t1){
            x++;
            *this = t1;
        }
};

int Test::x = 0;
```

https://www.hackerrank.com/tests/3te4t5n1nc8/questions/88ffo47elpo



A.P.T. Portfolio - Software role - Hiring Test - 1 01h : 59m to test end KS

☆ CPP move

What is the output of the following code?

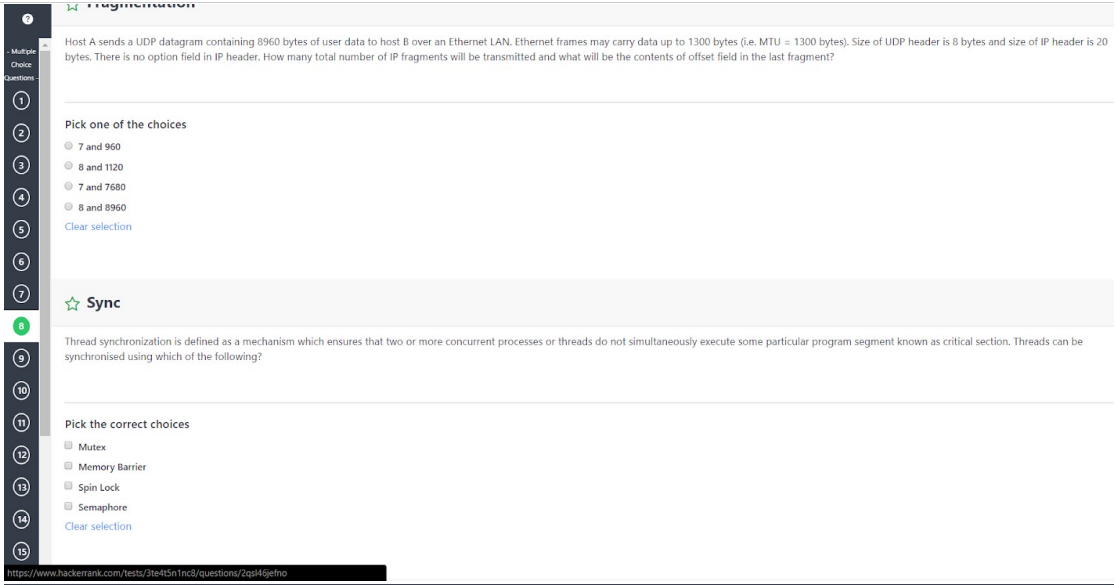
```
#include <iostream>
using namespace std;

class Test
{
        static int x;
public:
        Test() { x++; }
        static int getX() {return x;}
        Test(const Test& t1){
            x++;
            *this = t1;
        }
};

int Test::x = 0;

void f(Test&& t){
    return;
}

int main()
{
        cout << Test::getX() << " ";
        Test t[5];
        cout << Test::getX() << " ";
        Test t1;
        f(move(t1));
        cout << Test::getX() << " ";
}
```

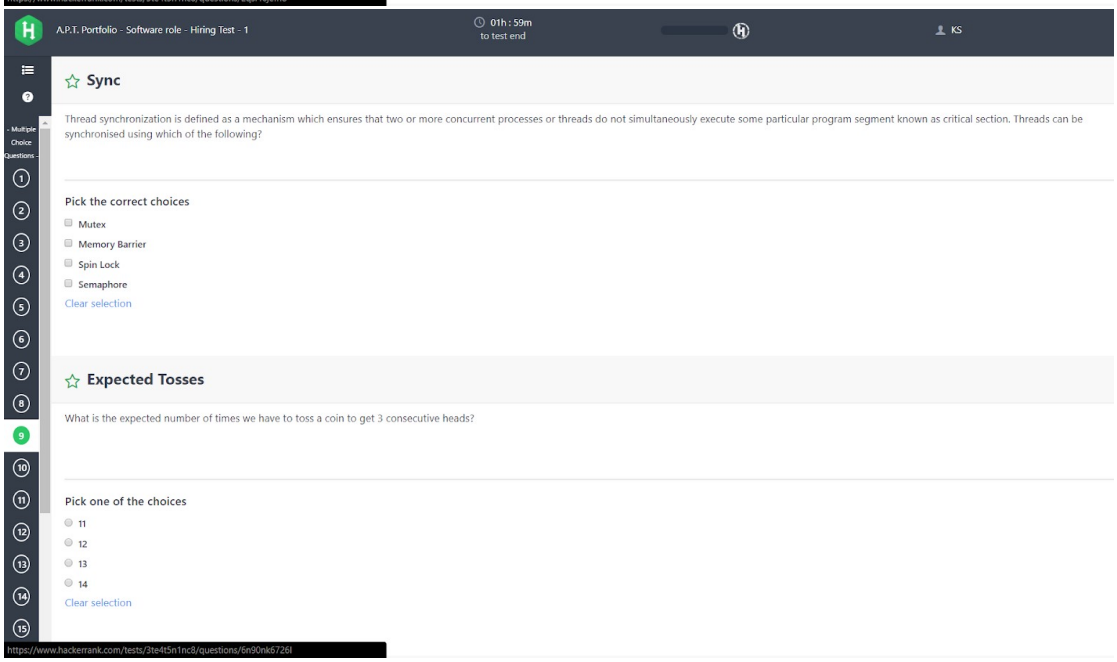
Pick one of the choices

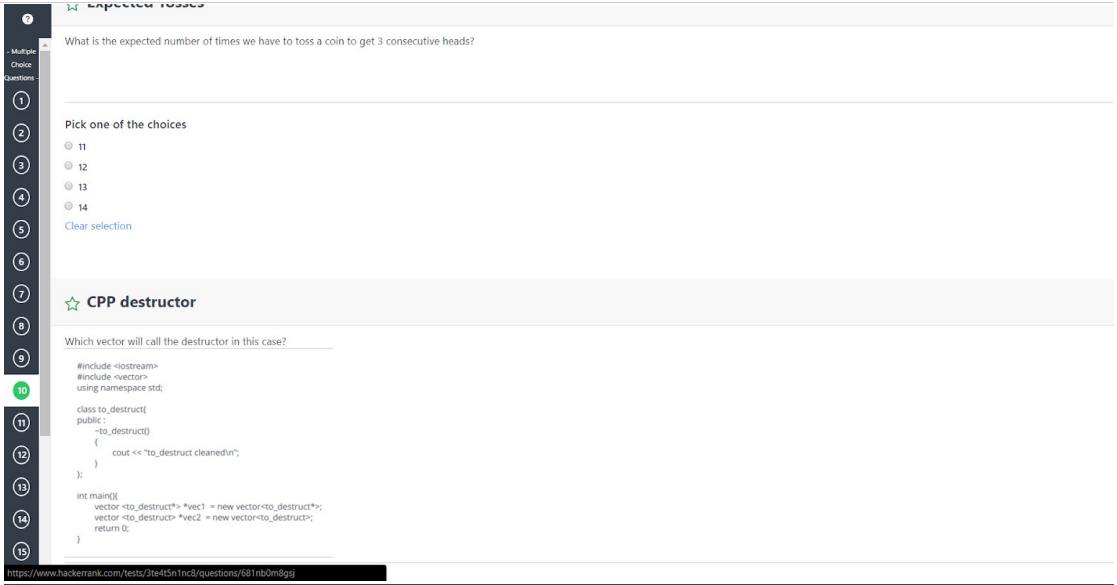
- 0 0 1
- 0 5 5
- 0 5 6
- 0 5 7

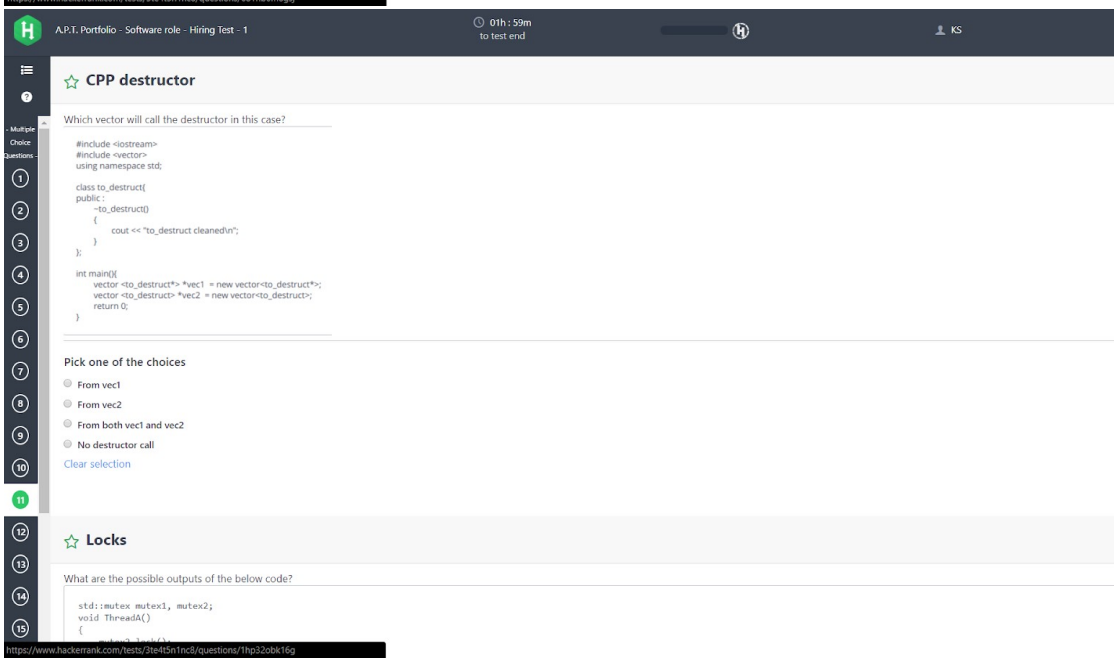
Clear selection

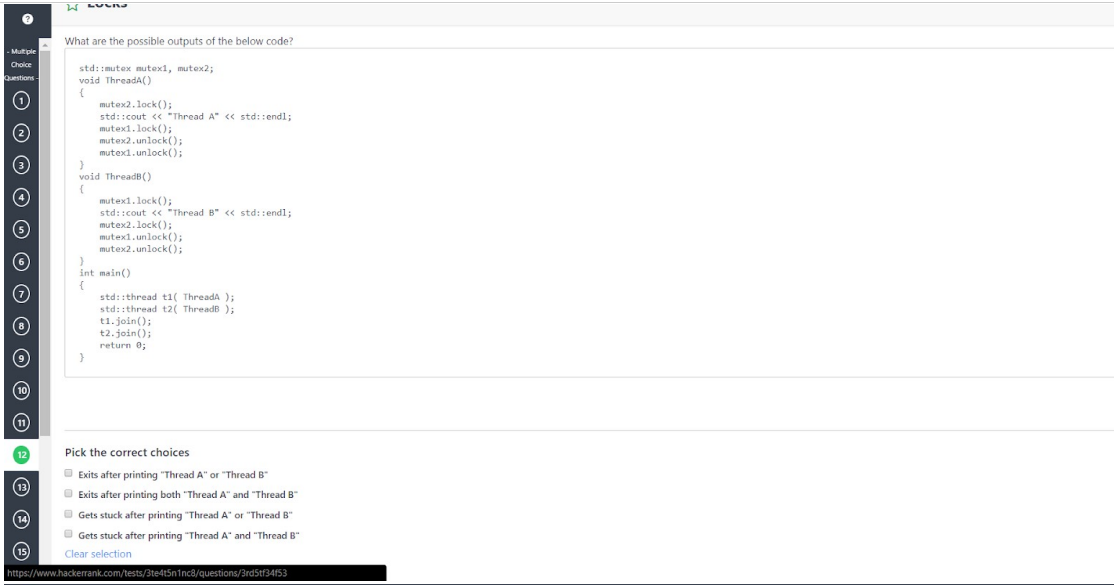
https://www.hackerrank.com/tests/3te4t5n1nc8/questions/f58pegjh1hc











What are the possible outputs of the below code?

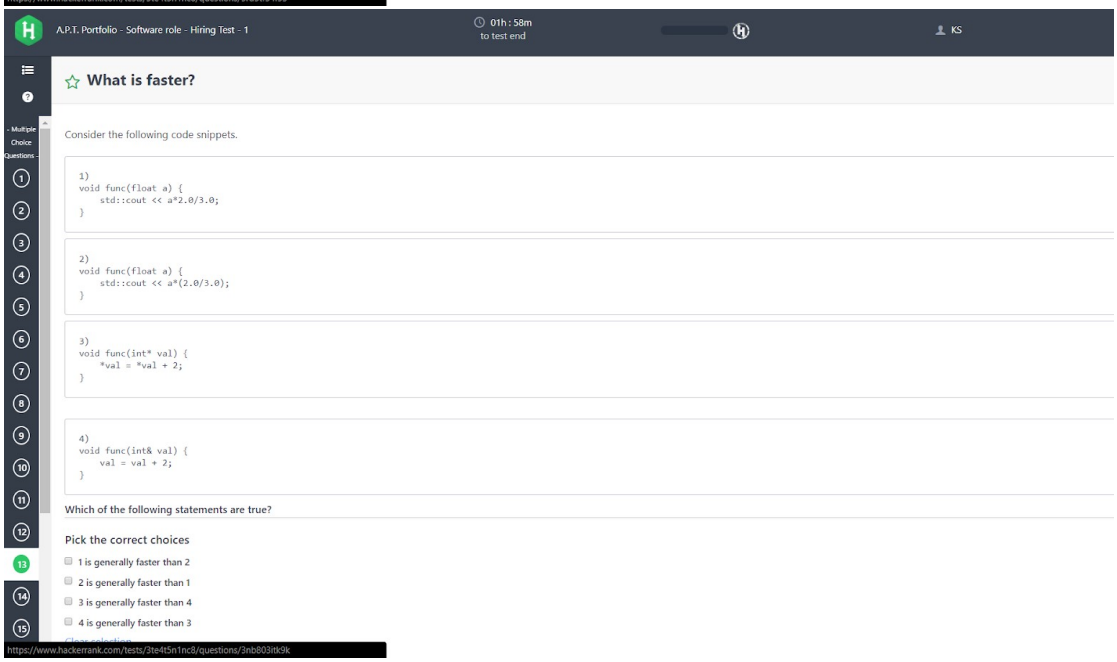
```
std::mutex mutex1, mutex2;
void ThreadA()
{
    mutex2.lock();
    std::cout << "Thread A" << std::endl;
    mutex1.lock();
    mutex2.unlock();
    mutex1.unlock();
}
void ThreadB()
{
    mutex1.lock();
    std::cout << "Thread B" << std::endl;
    mutex2.lock();
    mutex1.unlock();
    mutex2.unlock();
}
int main()
{
    std::thread t1( ThreadA );
    std::thread t2( ThreadB );
    t1.join();
    t2.join();
    return 0;
}
```

Pick the correct choices

- Exits after printing "Thread A" or "Thread B"
- Exits after printing both "Thread A" and "Thread B"
- Gets stuck after printing "Thread A" or "Thread B"
- Gets stuck after printing "Thread A" and "Thread B"

Clear selection

https://www.hackerrank.com/tests/3te4t5n1nc8/questions/3rd5tf34f53



A.P.T. Portfolio - Software role - Hiring Test - 1 — 01h : 58m to test end — KS

What is faster?

Consider the following code snippets.

```
1)
void func(float a) {
    std::cout << a*2.0/3.0;
}
```

```
2)
void func(float a) {
    std::cout << a*(2.0/3.0);
}
```

```
3)
void func(int* val) {
    *val = *val + 2;
}
```

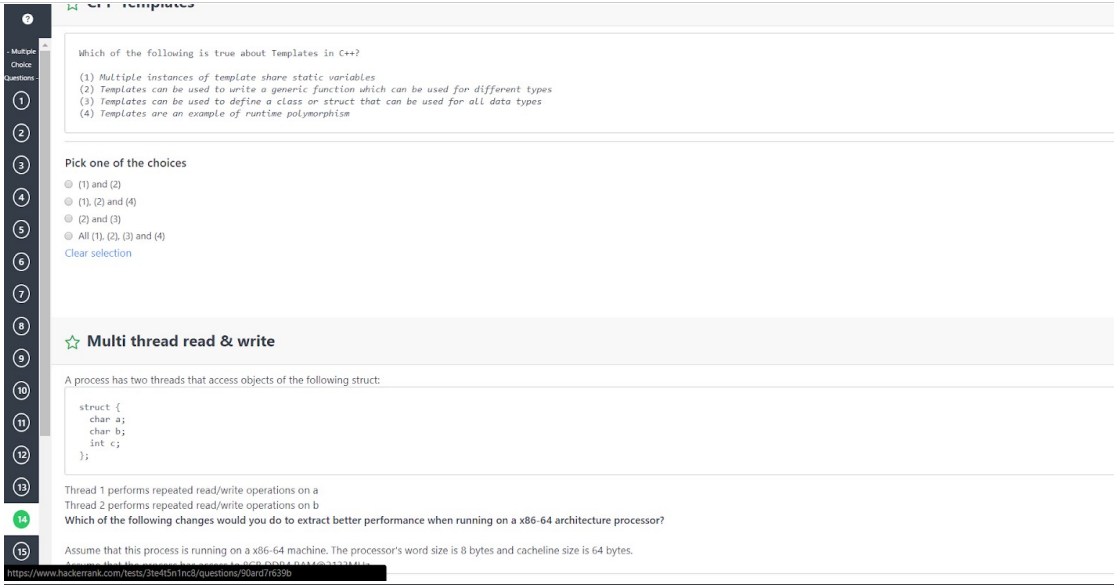
```
4)
void func(int& val) {
    val = val + 2;
}
```

Which of the following statements are true?

Pick the correct choices

- 1 is generally faster than 2
- 2 is generally faster than 1
- 3 is generally faster than 4
- 4 is generally faster than 3

https://www.hackerrank.com/tests/3te4t5n1nc8/questions/3nb803itk9k



Which of the following is true about Templates in C++?

(1) Multiple instances of template share static variables
(2) Templates can be used to write a generic function which can be used for different types
(3) Templates can be used to define a class or struct that can be used for all data types
(4) Templates are an example of runtime polymorphism

Pick one of the choices

- (1) and (2)
- (1), (2) and (4)
- (2) and (3)
- All (1), (2), (3) and (4)

Clear selection

Multi thread read & write

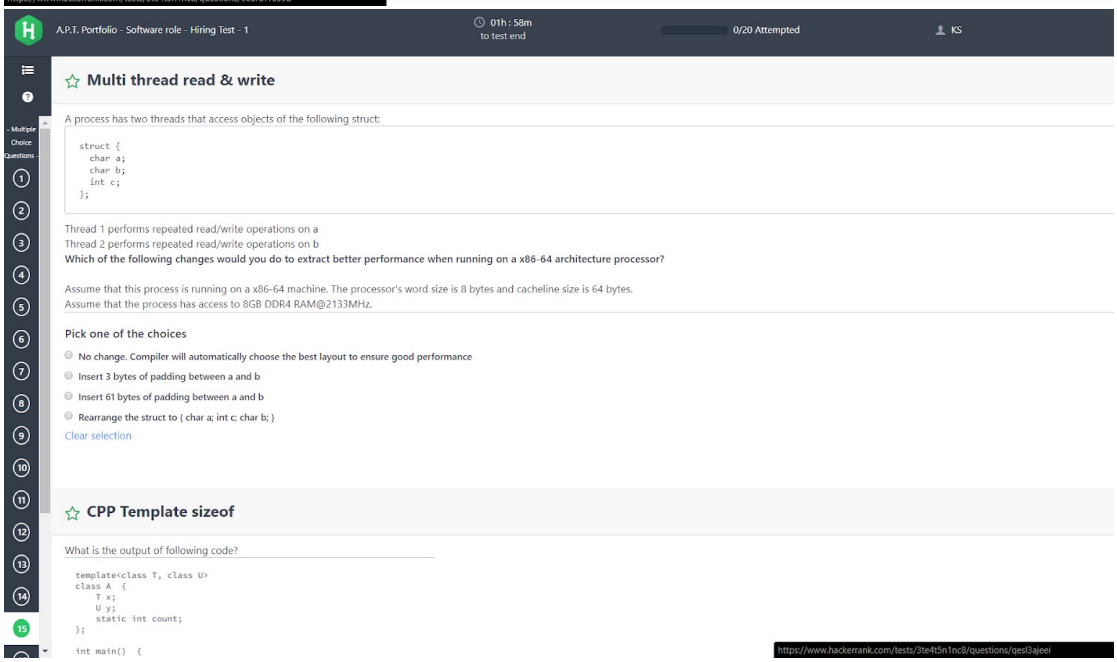
A process has two threads that access objects of the following struct:

```
struct {
  char a;
  char b;
  int c;
};
```

Thread 1 performs repeated read/write operations on a
Thread 2 performs repeated read/write operations on b
Which of the following changes would you do to extract better performance when running on a x86-64 architecture processor?

Assume that this process is running on a x86-64 machine. The processor's word size is 8 bytes and cacheline size is 64 bytes.

https://www.hackerrank.com/tests/3te4t5n1nc8/questions/90ard7r639b



A.P.T. Portfolio - Software role - Hiring Test - 1 01h : 58m to test end 0/20 Attempted KS

Multi thread read & write

A process has two threads that access objects of the following struct:

```
struct {
  char a;
  char b;
  int c;
};
```

Thread 1 performs repeated read/write operations on a
Thread 2 performs repeated read/write operations on b
Which of the following changes would you do to extract better performance when running on a x86-64 architecture processor?

Assume that this process is running on a x86-64 machine. The processor's word size is 8 bytes and cacheline size is 64 bytes.
Assume that the process has access to 8GB DDR4 RAM@2133MHz.

Pick one of the choices

- No change. Compiler will automatically choose the best layout to ensure good performance
- Insert 3 bytes of padding between a and b
- Insert 61 bytes of padding between a and b
- Rearrange the struct to { char a; int c; char b; }

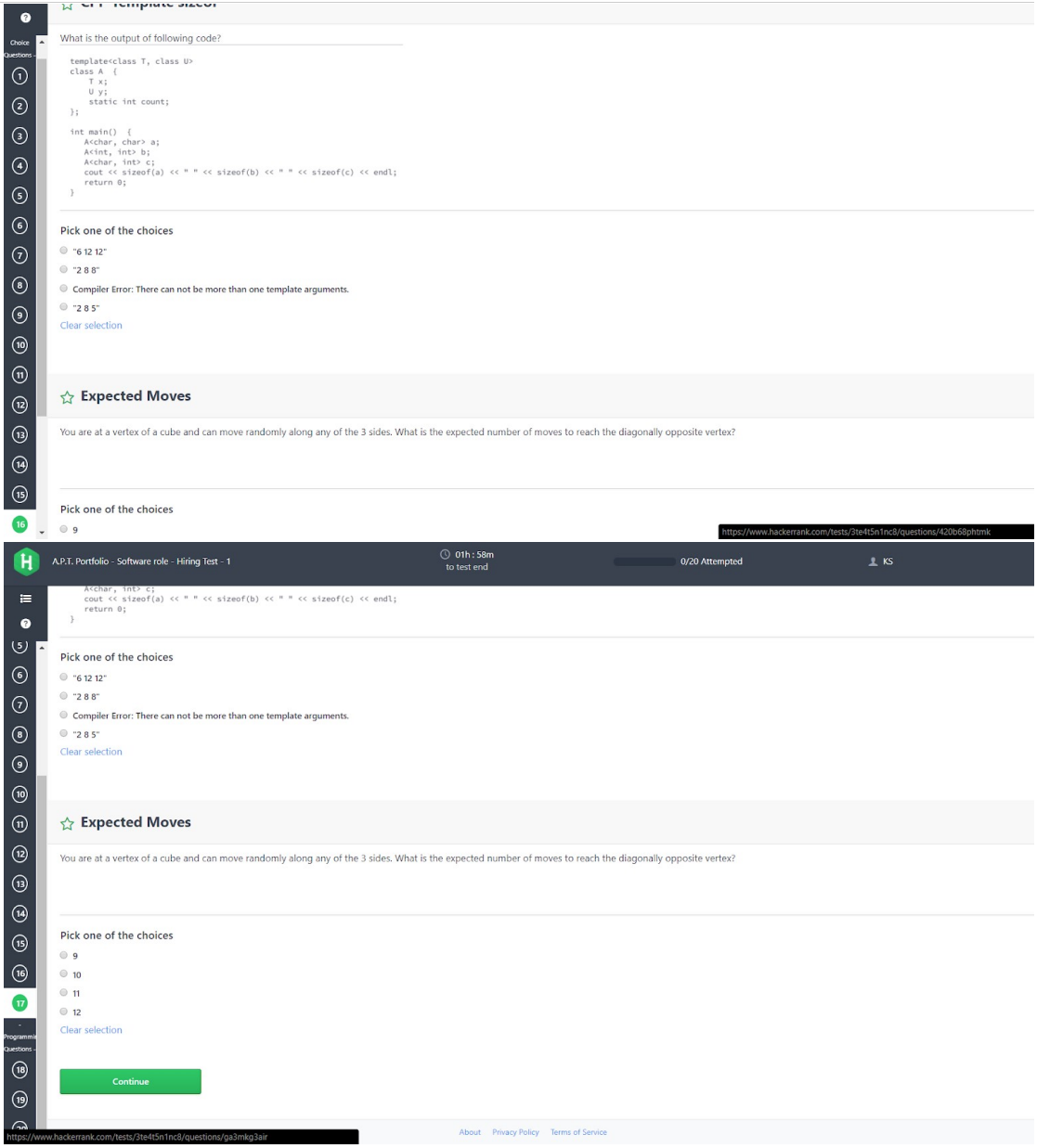
Clear selection

CPP Template sizeof

What is the output of following code?

```
template<class T, class U>
class A  {
    T x;
    U y;
    static int count;
};

int main()  {
```

https://www.hackerrank.com/tests/3te4t5n1nc8/questions/qesl3ajeei



What is the output of following code?

```
template<class T, class U>
class A {
    T x;
    U y;
    static int count;
};

int main() {
   A<char, char> a;
   A<int, int> b;
   A<char, int> c;
   cout << sizeof(a) << " " << sizeof(b) << " " << sizeof(c) << endl;
   return 0;
}
```

Pick one of the choices

- "6 12 12"
- "2 8 8"
- Compiler Error: There can not be more than one template arguments.
- "2 8 5"

Clear selection

Expected Moves

You are at a vertex of a cube and can move randomly along any of the 3 sides. What is the expected number of moves to reach the diagonally opposite vertex?

Pick one of the choices

- 9

https://www.hackerrank.com/tests/3te4t5n1nc8/questions/420b68phtmk

A.P.T. Portfolio - Software role - Hiring Test - 1 | 01h : 58m to test end | 0/20 Attempted | KS

```
   A<char, int> c;
   cout << sizeof(a) << " " << sizeof(b) << " " << sizeof(c) << endl;
   return 0;
}
```

Pick one of the choices

- "6 12 12"
- "2 8 8"
- Compiler Error: There can not be more than one template arguments.
- "2 8 5"

Clear selection

Expected Moves

You are at a vertex of a cube and can move randomly along any of the 3 sides. What is the expected number of moves to reach the diagonally opposite vertex?

Pick one of the choices

- 9
- 10
- 11
- 12

Clear selection

Continue

About Privacy Policy Terms of Service

https://www.hackerrank.com/tests/3te4t5n1nc8/questions/ga3mkg3air

You have a queue in which either you can push an element at the back of the queue or pop from the front of the queue. You are given as input a list of operations to perform on this queue. You are also given a list of operation numbers at which state of queue should be printed.
Your goal is to print the asked element in the queue at each of the k queries after the operations are done.
Note that all indexes start at 0.
If the queue is empty, print "empty".

If the index is higher than the queue size, print "empty"

Assume all numbers are integers.
You can assume that we will never pop the element if the queue has size 0.

The queue should be printed in a space separated format separating the individual components

Complete the following code to print the state of queue after operations requested in input.

Constraints

- 1 <= N <= 150000
- 1 <= K <= 150000

▼ Input Format For Custom Testing

The first line contains integers, *N K*, where N denotes the number of queue operations that follow and K number of queries that follow.

Each line *i* of the *N* subsequent lines (where $0 \le i < N$) contains <operation> [<number>], where <operation> can be either 'a' or 'p'. 'a' means append at the end of queue and is followed by the <number> to insert. 'p' means pop from front of queue and is NOT followed by any <number>.
Thereafter, each line j of the *K* subsequent lines (where $0 \le j < K$) contains <operation-number> <index> specifying the operation number at which state of queue needs to be queried and element at position <index> printed.

▼ Sample Case 0

Sample Input For Custom Testing

```
6 3
a 4
a 7
p
```

A.P.T. Portfolio - Software role - Hiring Test - 1 01h : 58m to test end KS

▼ Sample Case 0

Sample Input For Custom Testing

```
6 3
a 4
a 7
p
p
a 1
a 6
0 0
3 0
2 0
```

Sample Output

```
4
empty
7
```

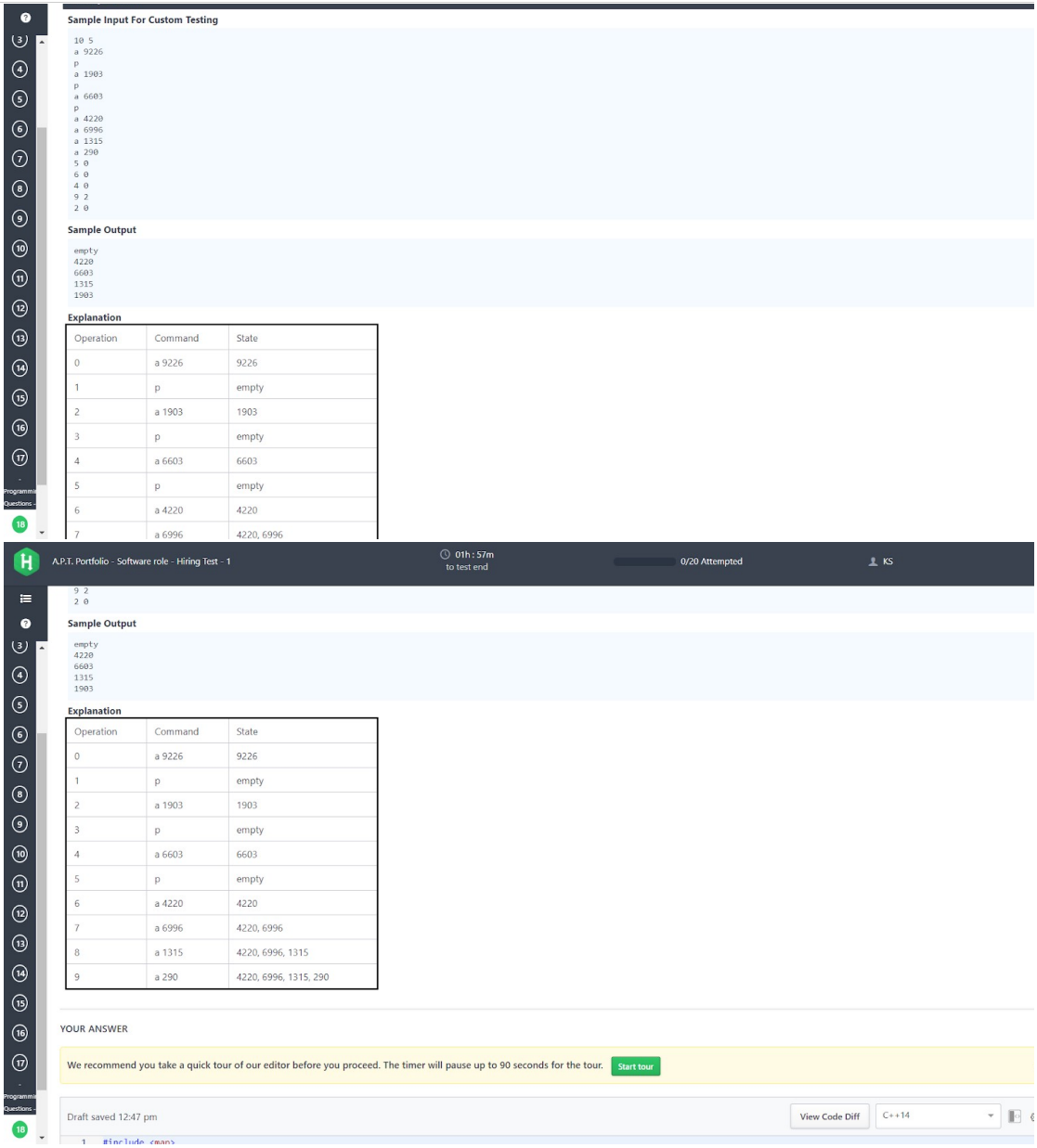
Explanation

Operation	Command	State
0	a 4	4
1	a 7	4, 7
2	p	7
3	p	empty
4	a 1	1
5	a 6	1, 6

▼ Sample Case 1

Sample Input For Custom Testing

```
10 5
a 9226
p
a 1903
p
a 6603
```



Sample Input For Custom Testing

```
10 5
a 9226
p
a 1903
p
a 6603
p
a 4220
a 6996
a 1315
a 290
5 0
6 0
4 0
9 2
2 0
```

Sample Output

```
empty
4220
6603
1315
1903
```

Explanation

Operation	Command	State
0	a 9226	9226
1	p	empty
2	a 1903	1903
3	p	empty
4	a 6603	6603
5	p	empty
6	a 4220	4220
7	a 6996	4220, 6996


```
9 2
2 0
```

Sample Output

```
empty
4220
6603
1315
1903
```

Explanation

Operation	Command	State
0	a 9226	9226
1	p	empty
2	a 1903	1903
3	p	empty
4	a 6603	6603
5	p	empty
6	a 4220	4220
7	a 6996	4220, 6996
8	a 1315	4220, 6996, 1315
9	a 290	4220, 6996, 1315, 290

YOUR ANSWER

There is a city named "Pizza city" where people eat only pizzas for a living. A pizza store delivers pizza to all residents of the city. Each person eats a number of pizzas over a week.

Lets say, there are *N* people in the city. Each person *p_i* eats *d_i* number of pizzas per week.

An **ideal distribution** is the one in which the difference in number of pizzas eaten on any two days(need not be subsequent) is at most 1.
For example, if d_i is 9, then an ideal distribution for this person will be [2,2,1,1,1,1,1] or any such permutation.
The pizza store, that delivers pizzas to all residents also needs to maintain an **Ideal Distribution** while delivering pizzas to residents.

Can you help the store create an ideal distribution which also satisfies ideal distribution for all the residents?

For example, if N=2 and d_1 = 9 and d_2 = 3, then the ideal distribution for p_1 = [1, 1, 1, 1, 2, 1, 2] and for p_2 = [1, 1, 1, 0, 0, 0, 0]. The ideal distribution for store = [2, 2, 2, 1, 2, 1, 2]

Function Description
Complete the function *functionName* in the editor below. The function must state what must be returned or printed.
functionName has the following parameter(s):
numbers[numbers[0],...numbers[n-1]]: an array of integers

Constraints
- 1 <= N <= 10^5
- 0 <= d_i <= 10^8

Input Format For Custom Testing

The first line contains an integer, *N*, denoting the number of people in Pizza City.
The second line contains N space separated integers, denoting d_i, i.e. number of pizzas each person eats during the week.

Output Format

Output ideal distribution for each p_i on a separate line, in a space separate manner.

Sample Case 0

We recommend you take a quick tour of our editor before you proceed. The timer will pause up to 90 seconds for the tour. Start tour

A.P.T. Portfolio - Software role - Hiring Test - 1 01h : 57m to test end KS

The second line contains N space separated integers, denoting d_i, i.e. number of pizzas each person eats during the week.

Output Format

Output ideal distribution for each p_i on a separate line, in a space separate manner.

Sample Case 0

Sample Input For Custom Testing

```
5
9 3 6 3 1
```

Sample Output

```
1 1 1 1 2 1 2
1 1 1 0 0 0 0
1 1 1 0 1 1 1
0 0 0 1 1 1 0
0 0 0 1 0 0 0
```

Explanation

Store distribution will be [3,3,3,3,4,3,3] for the above output which meets store requirements.

We recommend you take a quick tour of our editor before you proceed. The timer will pause up to 90 seconds for the tour. Start tour

View Code Diff C++14

```
#include <bits/stdc++.h>...

/*
 * Complete the 'calculateIdealDistribution' function below.
 *
 * The function is expected to return a 2D_INTEGER_ARRAY.
 * The function accepts INTEGER_ARRAY demand as parameter.
 */

vector<vector<int>> calculateIdealDistribution(vector<int> demand) {

}

int main()...
```

A.P.T. Portfolio - Software role - Hiring Test - 1 01h : 56m to test end 0/20 Attempted KS

Input Format For Custom Testing

The first line contains integers, *N K*.
The second line contains K space separated integers describing the travel schedule.

Sample Case 0

Sample Input For Custom Testing

```
31 7

1 2 4 5 7 29 30
```

Sample Output

```
11
```

Explanation

Purchase a weekly pass on 1st day and daily pass on 29th and 30th day

Sample Case 1

Sample Input For Custom Testing

```
60 8

15 23 29 38 43 47 52 57
```

Sample Output

```
16
```

Explanation

Purchase a daily pass for each day you travel

YOUR ANSWER

We recommend you take a quick tour of our editor before you proceed. The timer will pause up to 90 seconds for the tour. Start tour

Draft saved 12:48 pm View Code Diff C++14

```
#include <bits/stdc++.h>...
```

Uber

IITD

(Open for M.Tech ?) Yes
Q1. https://leetcode.com/problems/cherry-pickup/ (Constraints were different: n<=100)
Q2. https://leetcode.com/discuss/interview-question/202553/Traveling-is-Fun/
Q3. An array of integers is provided. You need to arrange the numbers such that no 2 consecutive numbers sum is divisible by 3. If no such arrangement is possible then return("impossible"), else return the arrangement. Please share solution approach.
Correct me if I'm wrong **O(n) solution.** https://code.hackerearth.com/8ca59fG
please give constraints of Q3 (size of the array <= 10^5)
Distribute Numbers according to remainder i.e. 0,1or2.You can't keep 0 remainder number together or 1and 2 remainder number together, so arrange accordingly. P.S. Someone please verify the approach. But how will you do so in O(nlogn) ??

IITG

Same questions as IITD
IITR and IITM please add Uber questions

IITKGP

Three coding questions-1.5 hour,platform-hackerrank.
https://imgur.com/a/jfF7arr

Trexquant

IIT Delhi, IIT Madras, IIT Kharagpur(same questions)

- Open for all branches

Total 36 questions. 3 coding questions out of which 1 has to be done in python, while the other two could be attempted in any language. I would suggest to do all the questions in python, as their input was in such a way that it was easier to code in python.

1. Two 2-D arrays were given of size numDays * numStocks. Let the two arrays be industry and ret. industry[i][j] gave the sector to which stock j belonged to on day i, while ret[i][j] was the return on stock j on day i. We had to output a 2-D of same dimension such that ans[i][j] is the average return for the sector to which stock j belongs on day i, on day i. Eg. industry = [[1,2]],[2,2]], ret=[[0.5,0.6],[0.7,0.8]]. On first day stock 1 belongs to sector 1 and stock 2 belongs to sector 2, therefore average return remains same as individual returns. On day 2 both the stocks belongs to sector 2, therefore average return for sector 2 on day 2 is (0.6+0.8)/2. Therefore answer will be, ans=[[0.5,0.7],[0.7,0.7]]
Please explain whether we have to find the average of each sector or each day?
2. A 2-D array was given and a function was given which takes in the stock prices of the last three days. Return a 2-D matrix with applied function on each stock on each day. Was library like Numpy or Pandas allowed? Yes

can we switch tabs during the exam? and what was the platform?00000Yes, hackerrank

3. A python code had to be debugged, (had to add only a single line).
https://imgur.com/a/2LFGSGF

Then there was a paragraph, about 700 words. We had to count the number of instances of 'th', 've', 'ou' and 'gh'.

Sandvine

IIT BHU

Section 1: 15 Aptitude MCQs (20 minutes)
Section 2: 25 Technical MCQs (40 minutes)
Section 3: 4 Coding questions (30 minutes)
Code has to be written on simple text editor
Q1. https://www.geeksforgeeks.org/equilibrium-index-of-an-array/
Q2. Simple Linked List question to move even position element to end of the list
Q3. Print element of tree at depth N without going deeper.
Q4. Simple Ad hoc problem

IIT ISM

Same pattern as IIT BHU
Coding question:
1. print all odd elements before even elements.
2. concatenate string in C(specified)
3. Rotate linked list by k places
4. Max depth of tree

Enphase Energy

IIT BHU

Embedded Hardware Engineer - Eligibility - Electrical, Electronics - BTech, IDD, MTech - CGPA>=8.00
Mettl Platform
2 Sections - 1. Cognitive - Aptitude - 30 MCQs (Consists Quant, LR, DI, Verbal)
2. Domain - Technical - 20 MCQs (Questions on Computer architecture, 8086 Microprocessor, Digital)
Most of the questions are repeated across campuses
Total Time Duration - 55min
Difficulty level - Moderate

Link for questions asked in IIT Madras - https://drive.google.com/open?id=1SlVnZvLOYTZmiNyFADUBsJZZFC0c-qKf

IITG

IITD

CGPA Cutoff of 8
Same pattern as IIT BHU and IITG.

RazorPay

PLEASE don't delete the questions.
Can u guys plz mention the profile name also for which it was open

IIT Mandi :

Coding 3 questions. Time: 1:30 min. Platform : HackerRank. CPI was 7 and above

10 MCQs : Mainly based upon tree traversals and pointers

Did the mcq include topics like os , networks, dbms??

Coding questions

1) Sort the Roman names : https://www.careercup.com/question?id=5665093766348800

2) Find Original 2D array from prefix sum 2D array.
Just opposite of this problem : https://wwwgeeksforgeeks.org/prefix-sum-2d-array/

3) You are given a string s i.e. "asdfgh" , and an integer array A[] = { 1, 2, 4 } here each entry in A is referring to an index in string s. Now for all values A[i] you have to increase the characters occurring till the A[i]th index by 1.
In our example, the answer would be : "dvfghh"

IIT K

RazorPay conducted test on HackerRank | STL Allowed | 2 Sections | Total 90m | Section Inter-switching Allowed | All questions same for All

Section-1 : Objective

Around 8 MCQs on OS, Data Structures, Algorithms

Section-2 : Coding

Q1. Same as Maximum points from top left of matrix to bottom right and return back problem on Geeksforgeeks where it was asked to find the maximum total no. of coins collected.

Q2. Similar to Valid IP Addresses Problem on Interviewbit where it was asked to calculate the count of valid IP Addresses possible.

Q3. Can't remember

IIT BHU

RazorPay conducted test on HackerRank | STL Allowed | 2 Sections | Total 90m | Section Inter-switching Allowed | All questions same for All

Section-1 : Objective

Around 8 MCQs on Threads, Memory Management (Page Faults, Thrashing), Doubly Linked List, Sorting Algorithms, Trees

Section-2 : Coding

Q1. Given a sentence (as a single string) of words and spaces, find the first word that has the maximum length. If there is no even-length word, return the string "00".
Example: 'The problemset of Hackerrank repeats a lot'
Lengths: 3 10 2 10 7 1 3
Maximum even length = 10 → First word with length 10 → problemset

Q2. Given an array cost[n], count the total selling price of items after applying discount

the shopkeeper rings up each item at its full price less the price of the first lower or equal priced item to its right. If there is no item to the right that costs less than or equal to the current item's price, the current item is sold at full price.

For example, assume there are items priced *[2, 3, 1, 2, 4, 2]*.

- The items *0* and *1* are each discounted by *1* unit, the first equal or lower price to the right.
- Item *2*, priced *1* unit sells at full price because there are no equal or lower priced items to the right.
- The next item, item *3* at *2* units, is discounted *2* units to *0*.
- Item *4* at *4* units is discounted *2* units as well, so its final price is *2*.
- The final item *5* at *2* units must be purchased at full price because there are no lower prices to the right.

The total cost is *1 + 2 + 1 + 0 + 2 + 2 = 8* units. The full price items are at indices *[2, 5]* using *0* based indexing.

Solution Approach : Stack-based

Q3. Given an array a[n], count the no. of Inversions - triplets such that (i<j<k) && (a[i]>a[j]>a[k]). Same as this Geeksforgeeks problem.
Solution Approach : Two loops of n*n each

IITR

JEE ALL , NO CGPA Criteria
HackerRank , 90 MInutes,
Around 8 MCQ on OS , Algorithms
3 coding question

1. https://leetcode.com/discuss/interview-question/363036/twitter-oa-2019-activate-fountain
2. Given an array containing integers, find min value of x such that when added to first element of array, then in prefix sum of array,no element should go below 1; eg, -1 , -3 , 4 (ans = 5). Approach :- find min element in prefix sum of array(say x), ans = -x+1;
3. You are a seller and give discounts on items based on quantity requested. You have to decide price per unit for a given quantity based on previous sell data and return it as string with 2 precision(rounded off).The data is given in the form of 2 arrays, first for quantity and second for price per unit sold for that order.In the previous data, if there is a quantity equal to requested quantity then corresponding prince is the ans,if all quantities are greater than requested quantity then interpolate two just greater quantities to get ans. If all quantities are less than requested, then interpolate two just smaller quantities for ans. If the requested quantity lies between two quantities then interpolate those 2 to get ans.
if there is only 1 data in array, then the corresponding price is the ans.If price for any data is negative or zero, then the data is corrupt, and doesn't have to be considered.
eg. Q = {2,4} , p = {10.0 , 12.0} , requested = 3 .. ans = 10 + ((12-10)/(4-2)) , requested = 6, ans = 12.0 + ((12-10)/(4-2))*(6-4) ;
requested = 1 , ans = 10.0 - ((12-10)/(4-2))*(2-1).
eg. Q = {2,4} , p = {2.5 , 2.58} requested = 2 , ans = 2.5 , requested = 4 , ans = 2.58.
There is only 1 request for a problem.Answer has to be rounded off to 2 digits and returned as a string.

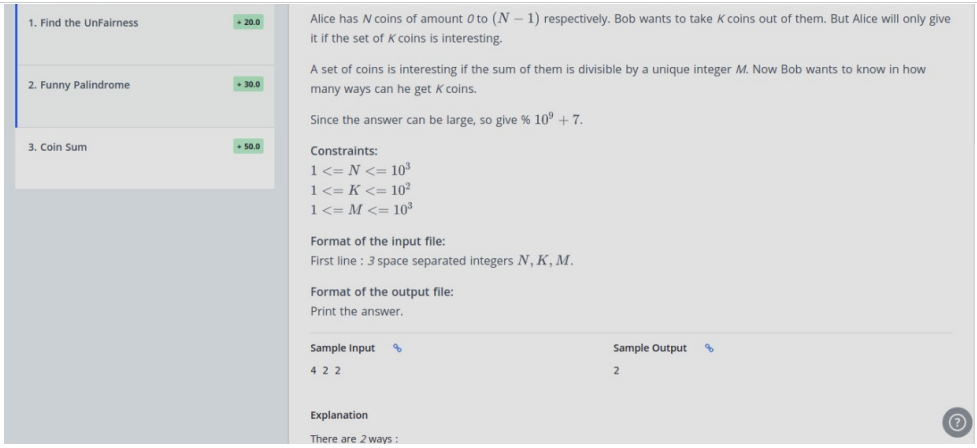
Oppo

There were 3 coding questions

Q-1 You have lower case characters 'a' to 'z' and you are given a number N which is the length of string. Now for a given value of N, you have to tell how many unique palindromes can be formed using lower case characters. The range of N was 1<=N<= 10^18. Ans was to be returned by taking modulo.

Sol - We have 26 characters. Now if value of N is odd, Then to make palindrome string we need to fill
(N/2) + 1 places. For each place there are 26 options. Similarly if N is even, then we need to fill N/2 places. So the problem boils down to finding pow(26, N/2 +1) or pow(26, N/2) which can be done in O(logn) using divide and conquer.

Q-3



Please post answer of 3rd question if someone solves.

(ctc of OPPO ?) 30

Have a solution in O(N*K*M) not sure if it will pass.

Dunzo

IIT Madras

Coding 2 questions. Time: 1:20 min. Platform : HackerRank. CPI was 7.5 above

1. Counting no of inversions in array. (Inversion is, for given arr and index i,j such that i<j and arr[i]>arr[j]. Question was framed slightly different way but they were asking for merge sort only.
https://www.hackerrank.com/challenges/ctci-merge-sort/problem
2. Given an array of strings of the same length and a target string find number of ways to make the target string such that index used for making the string is in strictly increasing order.

Ex: Strings :1: “valya”, 2: “lyglb”, 3: “vldoh” . Target string: “val”
Ans: 4.
How: If i number above strings as 1-2-3 then

V	A	L
1	1	1
1	1	2
3	1	1
3	1	2

Can be done through dp. Passes all test cases.
Yes

Eligibilty ??

IITK

3hrs - 3 questions

Ques 1 : Matrix variant of the travelling salesman problem. You start from 0,0 and have to reach destination after collecting all the coins in the matrix. Some cells are blocked too. You have to return the minimum number of steps to reach the end after collecting all the coins.

Ques 2 : See matrix pattern matching ques in Harness IITK.
Ques 3 : See Tree Based Question in HoneyWell IITH

Bidgely

4 problems , 90 minutes , Hacker Rank.
Eligibility: B.Tech/IDD: CSE, EE, ECE (With a 7.0 CGPA cut-off)

1. Knapsack problem with changed language (https://atcoder.jp/contests/dp/tasks/dp_d)
2. Given a binary string of length 2*N ,you can apply N operation and In one operation you can choose any two index(i , j).Invert the bits in between (i , j inclusive). Find the number of ways of setting all the bits to 1.Each pair of index can be selected at most once.
   eg . N = 2 , s = 0110 (ans = 4) , N = 5 , s = 1111111111 (ans = 5!)
   solution? Constraints?
3. Given a matrix with values either 0 , 1 , 2 .Each cell denotes a cubicle in office 0 denotes empty , 1 denotes employee is non - diseased , 2 denotes employee is diseased. If an employee is diseased , it can infect the employees surrounding him ({i+1,j} , {i -1 ,j} , { i , j +1} ,{i , j-1}) on a single day. Find minimum days in which ,all employees will be infected. Return -1 if all won't be infected. eg . {{0 ,1 }, {1 , 0}} ans = -1.
   Solution :Applying multisource BFS (BFS by adding all the points in queue where cell value is 2) is the best solution(N2). But applying dfs will also work,Take an auxiliary matrix for storing number of days it will take for the cell to be infected , apply dfs from all the points where arr[i][j] == 2 ,pass a day variable in the function , minimize the number of days in every dfs call for every cell it can reach.
4. . https://www.interviewbit.com/problems/simplify-directory-path/

IITKGP:

Exactly same as IITR
IITKGP guys, can someone tell the solution to above question-2??? No one from IITR was able to do it

Zilingo

IITG:

SDE profile: 4 problems , 90 minutes , Hacker Rank.
Eligibility: B.Tech All branches

1. Given a list of strings and a string key, find the number of strings in the list which have the key as prefix. e.g. {adm, admin, admission, noadmission} , key = “adm” then count =2(don’t count exact string adm) will this be solved by brute force?
2. Given a tree. each node has a value assigned to it. return the maximum length a path can have.//How is path length defined??(Question was similar to this https://www.geeksforgeeks.org/find-maximum-pquestionsquestionsath-sum-in-a-binary-tree/ But instead of binary tree it was a general rooted tree)
3. Given a number, find the number of set bits in the number
4. Given a string, return maximum of len(a)*len(b), where a and b are non-overlapping palindromic substrings of s. //Constraints?+1(String length was 1000. O(n2) DP passed all the test cases)

Data science profile: 16 problems , 60 minutes , Hacker Rank.
Eligibility: B.Tech All branches

1. 2 coding questions:questionsquestions
   a.
   b.
2. Problems on direct application of formula P(X=x) of Hypergeometric distribution, Binomial distribution, etc
3. Average of a set of numbers is 10, standard deviation is 2.5, a subset is taken out in which 80% elements lie within 2 standard deviations. Choose which of 4 options can be that subset
4. Number of ways to put 4 caps on 4 bottles(each bottle has its own unique cap) such that no cap is on the right bottle (Derangement)

IIT BHU:

SDE profile: 4 problems , 90 minutes , Hacker Rank.
Eligibility: B.Tech All branches

1. https://leetcode.com/problems/cherry-pickup/
2. Simple 0-1k Knapsack problem.
3. Given (a,b) and (c,d). Return yes or no whether it is possible to reach from (a,b) to (c,d) such that you can either move (a+b,b) or (a,a+b) from (a,b).//Simple bfs/dfs based solution got accepted, also you can just compgcd are the gcd of both (a,b) & (c,d). If both are same return Yes
4. maximum difference between two points variant question….can you plz elaborate..not clear what you mean??? test tomorrow!
   Plz tell full question-4 if someone remembers..BHU guys...help!!!! .
   It was just a variation of maximum difference between two elements in an array. Don’t worry question was very simple

IITR:

ALPHAGREP

IITK

Q1. You are given an array of integers. In one operation you can choose any triplet and remove the max and min of that triplet from the array. Return the minimum number of operations such that array has distinct elements.

Q2. You are given n intervals(which represent meetings). Endpoints of interval represent deadline(meetings should take place before the deadline). Compute the maximum number of meetings that can be held. Each meeting takes 1 unit of time to complete and only one meeting can be held at a time.

Q3. You have a text of length n.(not explicitly given) You need to make some parts of this text bold, italic or underlined. These changes are given to you in the form of intervals(each for bold, italic and underlined). There are two types of operations in which you can make the desired changes. Operation-1: Select a contiguous section of text. Operation-2: Change the selected text into b,i, or u. Return the minimum number of operations in which these changes can be made.

Q4. Given two binary grids. Count the number of connected 1's which are exactly the same in both the grids.(same question asked in dunzo and harness as well)

Q5. You are given a tree. Each edge has a character on it. You need to return number of paths such that characters on the path can be rearranged to make it a palindrome.
n-10^5

Confluent

IITG, IITM

Mtech allowed
CPI - 8.00
2 coding questions, 1 hour, hackerrank
constraints for the 1st question??
questions: https://imgur.com/a/OVmzB4I

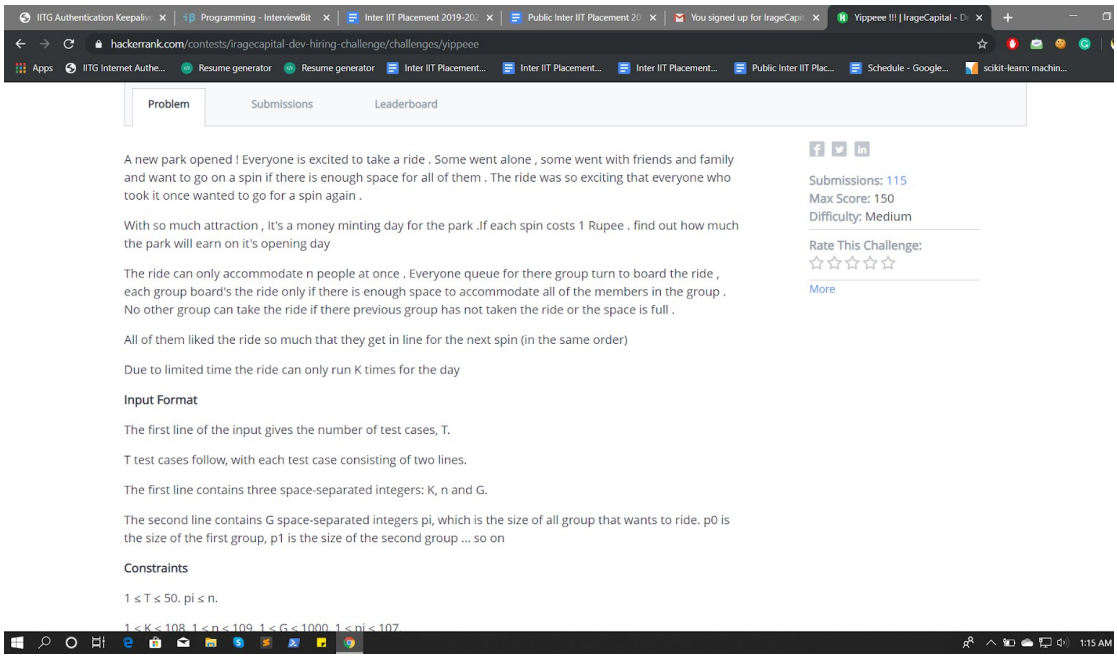
IITD

Mtech allowed
CPI - 8.00
2 coding questions, 1 hour, hackerrank
constraints for the 1st question??
Questions: Confluent_IITD_19

IIT BHU
3 coding 1 hr Speed Test
1.Alice and Bob Maze
2.Turnstile
3.Connected components

Delhivery

Mtech Allowed
30 MCQS, 2 coding, 2hr test.
coding ques: https://imgur.com/a/WNDgIuB



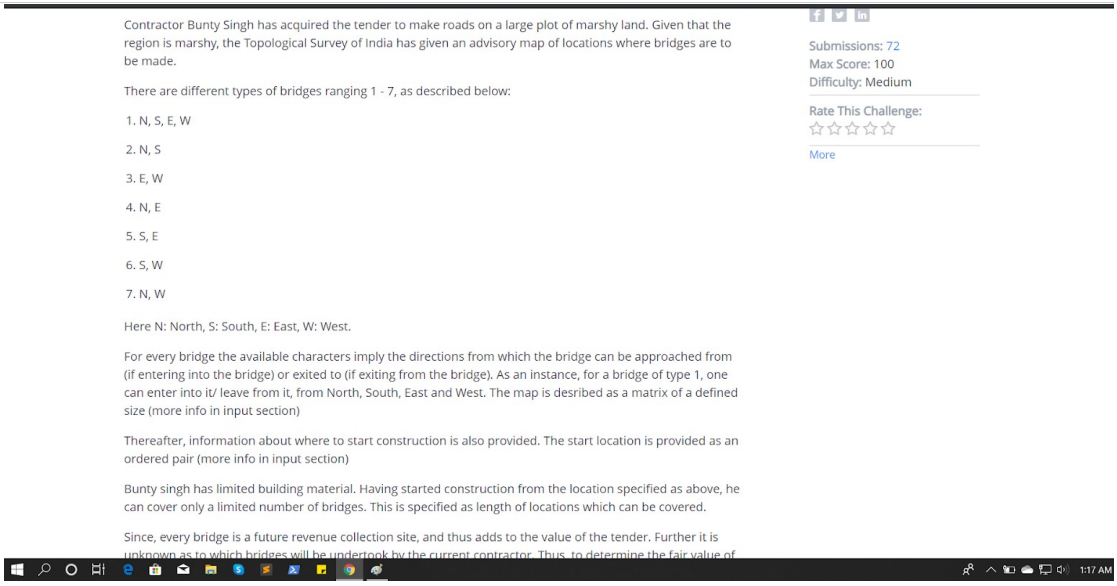
IrageCapital

IITG

iRage Capital conducted test on Hackerrank | 2 Coding Questions | 3 Hours

Q1 - Yippeee!!! (Medium, 150 Marks)
Q2 - Value the Contract (Medium, 100 Marks) (BFS)

The two problems can be accessed by signing up on this locked contest:
contests/iragecapital-dev-hiring-challenge



Contractor Bunty Singh has acquired the tender to make roads on a large plot of marshy land. Given that the region is marshy, the Topological Survey of India has given an advisory map of locations where bridges are to be made.

There are different types of bridges ranging 1 - 7, as described below:

1. N, S, E, W
2. N, S
3. E, W
4. N, E
5. S, E
6. S, W
7. N, W

Here N: North, S: South, E: East, W: West.

For every bridge the available characters imply the directions from which the bridge can be approached from (if entering into the bridge) or exited to (if exiting from the bridge). As an instance, for a bridge of type 1, one can enter into it/ leave from it, from North, South, East and West. The map is desribed as a matrix of a defined size (more info in input section)

Thereafter, information about where to start construction is also provided. The start location is provided as an ordered pair (more info in input section)

Bunty singh has limited building material. Having started construction from the location specified as above, he can cover only a limited number of bridges. This is specified as length of locations which can be covered.

Since, every bridge is a future revenue collection site, and thus adds to the value of the tender. Further it is unknown as to which bridges will be undertook by the current contractor. Thus, to determine the fair value of

Submissions: 72
Max Score: 100
Difficulty: Medium

Rate This Challenge:

More

1:17 AM

IIT BHU

iRage Capital conducted test on Hackerrank | 2 Coding Questions | 3 Hours

Q1 - No Cheating (Medium, 150 Marks) place T teams(Size of each team is given) in N*M matrix such that every member of a team is placed at maximum distance from his team members. Find the sum of minimum manhattan distances of each team.
Q2 - Fund the Contract (Medium, 100 Marks) (BFS) Largest connected component

The two problems can be accessed by signing up on this locked contest:
contests/iragecapital-hiring-challenge

BNY MELLON

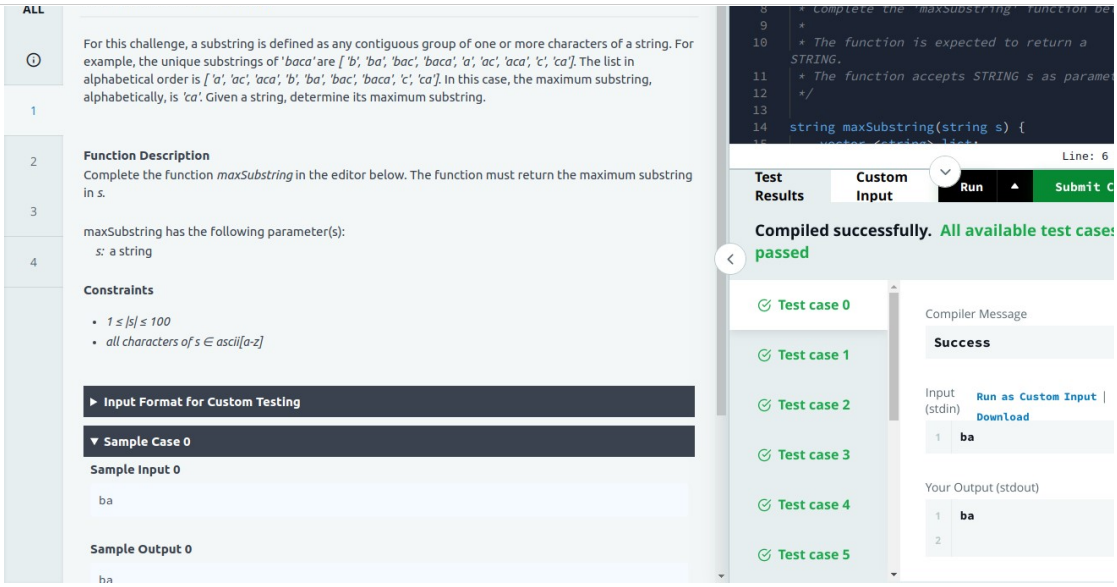
IIT Hyderabad

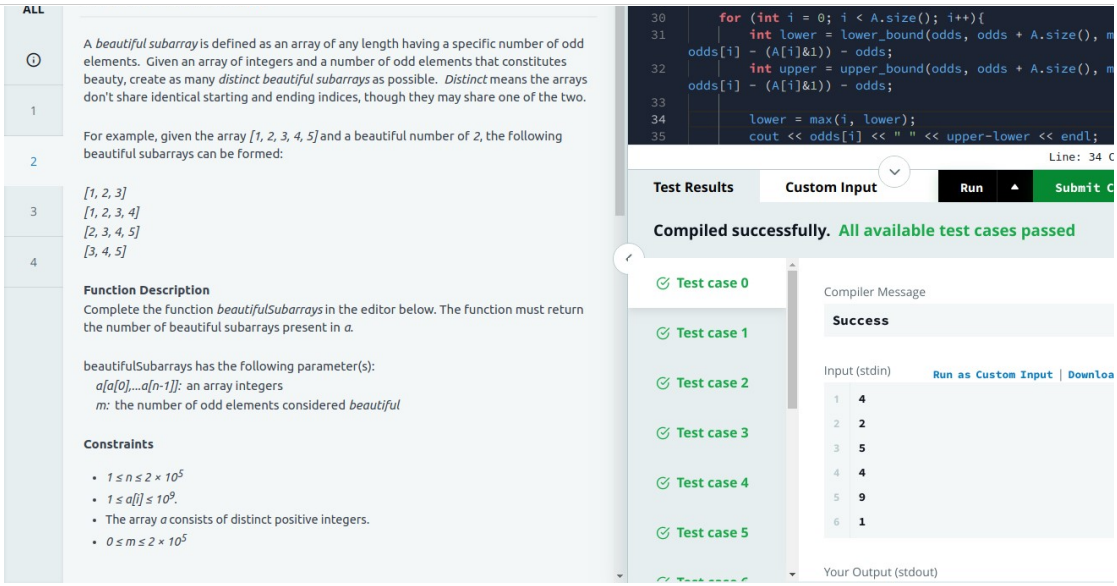
- 4 Questions
- Set based
- Link: https://docdro.id/lt1VCmX

Please tell the 4th question(hard)+3

IIT BHU

4 questions, multiple sets, 90 mins, hackerrank, easy-medium-medium-hard
This is my set -





A *beautiful subarray* is defined as an array of any length having a specific number of odd elements. Given an array of integers and a number of odd elements that constitutes beauty, create as many *distinct beautiful subarrays* as possible. *Distinct* means the arrays don't share identical starting and ending indices, though they may share one of the two.

For example, given the array *[1, 2, 3, 4, 5]* and a beautiful number of *2*, the following beautiful subarrays can be formed:

[1, 2, 3]
[1, 2, 3, 4]
[2, 3, 4, 5]
[3, 4, 5]

Function Description
Complete the function *beautifulSubarrays* in the editor below. The function must return the number of beautiful subarrays present in *a*.

beautifulSubarrays has the following parameter(s):
a[a[0],...a[n-1]]: an array integers
m: the number of odd elements considered *beautiful*

Constraints

- $1 \le n \le 2 \times 10^5$
- $1 \le a[i] \le 10^9$.
- The array *a* consists of distinct positive integers.
- $0 \le m \le 2 \times 10^5$

```
for (int i = 0; i < A.size(); i++){
    int lower = lower_bound(odds, odds + A.size(), m
odds[i] - (A[i]&1)) - odds;
    int upper = upper_bound(odds, odds + A.size(), m
odds[i] - (A[i]&1)) - odds;

    lower = max(i, lower);
    cout << odds[i] << " " << upper-lower << endl;
```

Test Results | Custom Input | Run | Submit

Compiled successfully. All available test cases passed

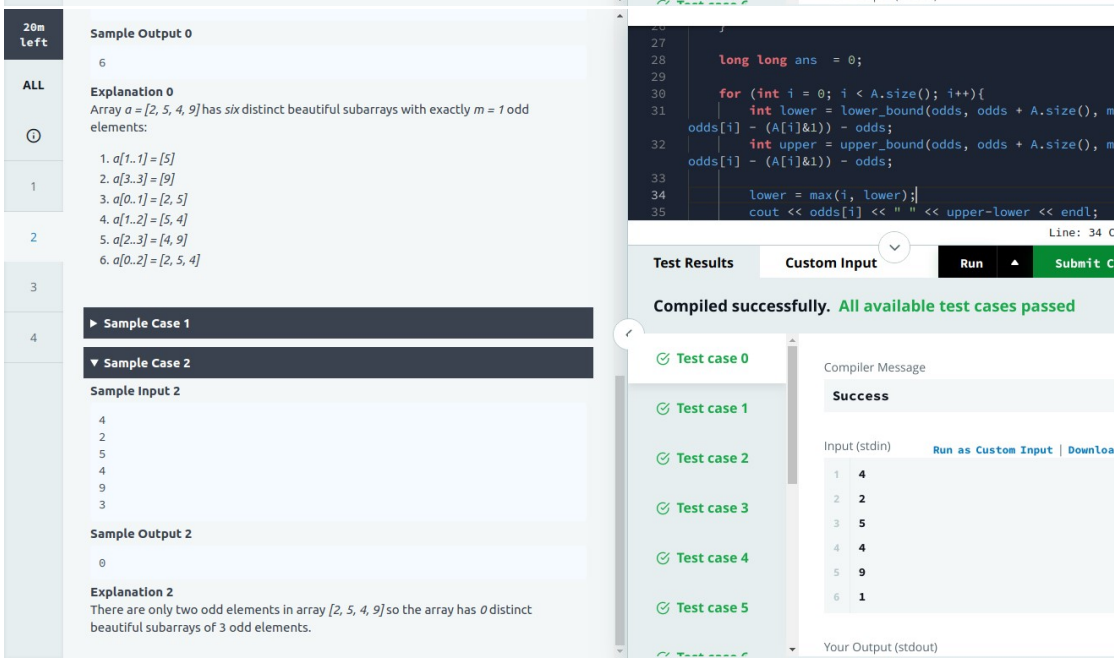
Test case 0 … Test case 5

Compiler Message: Success

Input (stdin) — Run as Custom Input | Downloa

```
4
2
5
4
9
1
```

Your Output (stdout)



Sample Output 0

```
6
```

Explanation 0
Array *a = [2, 5, 4, 9]* has *six* distinct beautiful subarrays with exactly *m = 1* odd elements:

1. *a[1..1] = [5]*
2. *a[3..3] = [9]*
3. *a[0..1] = [2, 5]*
4. *a[1..2] = [5, 4]*
5. *a[2..3] = [4, 9]*
6. *a[0..2] = [2, 5, 4]*

▶ Sample Case 1

▼ Sample Case 2

Sample Input 2

```
4
2
5
4
9
3
```

Sample Output 2

```
0
```

Explanation 2
There are only two odd elements in array *[2, 5, 4, 9]* so the array has *0* distinct beautiful subarrays of 3 odd elements.

```
long long ans  = 0;

for (int i = 0; i < A.size(); i++){
    int lower = lower_bound(odds, odds + A.size(), m
odds[i] - (A[i]&1)) - odds;
    int upper = upper_bound(odds, odds + A.size(), m
odds[i] - (A[i]&1)) - odds;

    lower = max(i, lower);
    cout << odds[i] << " " << upper-lower << endl;
```

Test Results | Custom Input | Run | Submit

Compiled successfully. All available test cases passed

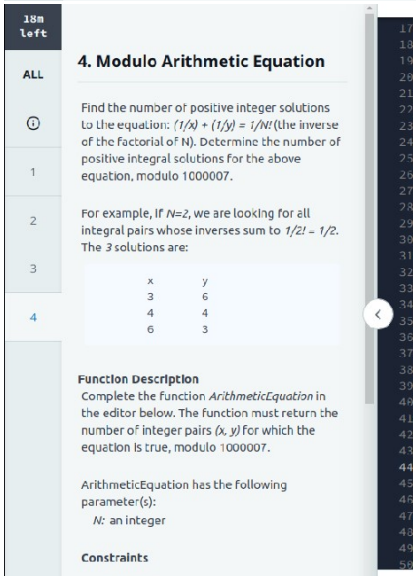
Test case 0 … Test case 5

Compiler Message: Success

Input (stdin) — Run as Custom Input | Downloa

```
4
2
5
4
9
1
```

Your Output (stdout)



4. Modulo Arithmetic Equation

Find the number of positive integer solutions to the equation: *(1/x) + (1/y) = 1/N!* (the inverse of the factorial of N). Determine the number of positive integral solutions for the above equation, modulo 1000007.

For example, if *N=2*, we are looking for all integral pairs whose inverses sum to *1/2!* = *1/2*. The *3* solutions are:

x	y
3	6
4	4
6	3

Function Description
Complete the function *ArithmeticEquation* in the editor below. The function must return the number of integer pairs *(x, y)* for which the equation is true, modulo 1000007.

ArithmeticEquation has the following parameter(s):
N: an integer

Constraints

IITG

4 Question. 90min
question: https://imgur.com/a/yaRkpUZ

##can someone please post the solution for Price to sell problem.

Salesforce

IIT(ISM) DHANBAD(29/10/19)(plz don't delete)

2 coding questions and 15 mcqs to be done in 1 hour (hackerrank)

1. Given two string find if 1st string is present as a subsequence in the second string.
   Eg: 1st string: butl, 2nd string: beautiful. print 'true'. 1st string: btel, 2nd string: beautiful. print 'false'.
2. Given a string S and a pattern k, you need to find the shortest length subsequence of S which contains all the character of pattern. And also the string is cyclic in which you can come back to the starting position when you have reached the end in cycling order.
   Is it substring or subsequence in ques 2?
   Eg.-
   1) s=abgeasd k=eag
   return gea
   2) s=jainummsm k=jam
   return mja

solution : You just need to find the pattern k in s+s(write s two times as repetition allowed for cyclic case). O(n) solution required using sliding windows algorithm.
3 mcq from machine learning(bais,variance based, k mean clustering algorithm complexity) , 2 from dbms(pattern based query) ,4-5 from OS(mainly from page fault(numerical) ,memory management, mutual exclusion & progress) , 2 code from java script(input/output based)

Please add another question….

IITK

same as IIT(ISM) DHANBAD

IITR
All branches , 7 and Above(CGPA)

1 hour test on Hackerrank

1. Based on generating spiral order matrix https://www.interviewbit.com/problems/spiral-order-matrix-ii/
2. There is a hypothetical world consisting of n rows and m columns .There are two types of people in world Introvert and Extrovert. The happiness of introverts decrease by 30 points if any person is living adjacent.(Adjacent Cells Sharing Common side). The happiness of extroverts increase by 20 if anyone is living in neighbour. Initial initial happiness of both the types and the number of introverts and extroverts. Return maximum happiness that can be achieved by placing them in the world.(n ,m <= 10)
3. 15 MCQs based on OS,DBMS,Network.

Qualcomm

Section 2: MCQs on data structures & programming.
Section 3: Choice between Digital, Analog, Computer Science. MCQs in each of these sections.

SAP Labs

IITD

wTime 1 hr and 2 questions
https://imgur.com/a/oT654TX?fbclid=IwAR2gB6J5vP6a3dbeQydDn0lcHPBKL8Vzw4r8cEzxregomuw-HnX_IJAz790
People got different questions from a pool of questions
1. https://imgur.com/https://imgur.com/a/zKmjS89a/zKmjS89 //Ask
How to pass all test cases in question Load Balancing provided in the above link?
Did the second code in link pass all test cases? No How many did it pass? TLE or wrong answer? It can be done using 2 pointers approach since the array of sides will be sorted (the sequence of sides is monotonically increasing)
Can Someone tell the solution to Load Balancing Problem ? Problem description is not very clear?
2. Find closest pair amongst group of 2D points https://www.geeksforgeeks.org/closest-pair-of-points-onlogn-implementation/

3. Find all possible palindromic substrings in a string.

4. Minimum number of characters to insert to make a string palindrome.//Constraint?

5. https://www.geeksforgeeks.org/given-an-array-a-and-a-number-x-check-for-pair-in-a-with-sum-as-x/

6. A forest was given. We have to find number of nodes in every connected component, take ceil of sqrt of the number and add them and return.N

7. Travelling is fun

Please tell as many questions from the pool as you know

IITG

1. Find / Count the number of palindromic substrings of a string.
2. **Opening Hospitals** question from IITD Harness test. (https://imgur.com/a/7aL2Ggx)
(Someone please post the solution if all the test cases were passed) (**Soln**: https://ide.geeksforgeeks.org/EXvKe46X49 **it passed all the test cases** . Idea similar to this problem:https://leetcode.com/problems/binary-tree-cameras/) Did Bipartite worked?
3. Final Discounted Price (same as IITG ServiceNow Test https://imgur.com/a/lQMfAj5)
4. Longest String Chain (https://leetcode.com/problems/longest-string-chain/) (Repeated from last year SAP Labs test)
5. Two Question: Maze and count palindrome substring: https://imgur.com/a/TzAfeH5 someone please provide solution for the maze problem.
(For maze Ques, use Bfs with bitmask) //Ask
6. Given an array of numbers and a target number, find number of triplets in array such that at least two numbers of the triplet are adjacent, and their product is equal to the target number. Two triplets are distinct if index of at least one number is different. Constraints: 3 <= size of array < 10^5. -10^10 < Tarm get Number < 10^10. Desired answer, target number were of type long and numbers in array were of type int. Example: array = [1,3,5,3,5] and target = 15. Ans = 4. Brute force will give TLE, O(n) solution was required.

IITR

Test was from set of questions. Hackerrank 1 hour 2 questions
1. Given a string and an integer k, if occurrences of any character gets equal to k, remove all of the occurrences of that character and return string. eg “abbcccb” and k = 3 return a. Do we need to just remove if adjacent occurrences =k or it can be anywhere? Eg if s=”abcbdb” and k=3, Will we remove b or not???
no we won't, we will remove only consecutive equal occurrences
for ex: abbcccb and k=3 then the answer will be a
https://www.geeksforgeeks.org/reduce-the-string-by-removing-k-consecutive-identical-characters/
2. Given number of nodes and their edges return summation of all connected components as (ceiling(sqrt(number of elements in that particular component))*component.
3. Given the locations of all the cars parked in an array and an integer k, minimum no of cars to be covered by shelter, return the minimum length of shelter needed to cover k

2 interest, (1,3) share 2 interest and (2,3) share 2 interest and max product 6. eg [1 2 1][1 2 2][2 3 2][2 3 4][3 4 4] ans=6 as (2,3) share 2 interest, (1,2) share 2 interest, (1,3) share 1 interest (1,4) share no interest, (2,4) share 1 interest (3,4) share 1 interest. max shared interest = 2 and maxproduct =6.
5. https://leetcode.com/discuss/interview-question/algorithms/202924/ascend-online-assessment-product-of-palindromes.
6. Given 4 articles and prices of their different types in separate arrays.size of each array is 1000 max. You have to purchase exactly 1 item from every article under a given budget. FInd the number of possible combinations of different purchases.
eg. A = [1 , 2] , B = [10] , C=[1 , 2] , D = [5 , 6] , budget = 18. ans = 4,([1 10 1 5] , [2 10 1 5],[1 10 2 5],[1 10 1 6]).
Please tell more questions, also please give the constraint for this problem?

7. Given vector of words "w" and sentences "sen". You have to check the anagrams of words and return the count of sentences can be made by replacing the word by their anagram if present in the w. (All the words in all sentences will be in w.
For ex: w = {cat, act, in, it, date, tade, peak} sen = { cat it tade, act in peak} SO for answer will be 4, 2. cat it tade, act it tade, cat it date, act it date.
8. Given two vectors. One contain array element "ele" and other indexes "ind" to push corresponding element at that index in new array shifting all elements to its right. For ex: ele = {0,1,2,3,4} ind ={0,1,2,1,2} ans: {0,3,4,1,2} ele: {0,1,2} ind: {0,1,0} ans: {2,0,1} .
I had done vector<int> res;
for(int i = 0; i<ele.size();i++) res.insert(res.begin()+ind[i], ele[i]);
return res; passes all cases except one //Ask

IITK

Test had a pool of questions. Took place in hackerrank (1 hr). Some questions came from regex.
1. https://www.careercup.com/question?id=6229105402970112 . In different words, but the same logic. //ask
2. https://www.geeksforgeeks.org/minimum-number-increment-operations-make-array-elements-equal/. In different words, but logic was same.
3. Write a regular expression for those string where first and last elements are the same. String are made up of two elements only. //Ask
Was there constraint on language or could you just write simple C++ code??

Sharing my experience, the two questions that I got are:-
1. Maximum Sum Subarray:
The question was framed in a slightly different way but this was the main logic. Luck plays an important role too as I got this question that I could solve in just 3-4 minutes.
2. Fun with palindromes:
We were provided with a string for which we need to find two palindromic subsequences such that the product of the lengths of those two subsequences should be maximum. Also, those subsequences shouldn't be overlapping(i.e. the starting index of the second subsequence should be greater than the ending index of the first subsequence).

IIT KGP
Test had a pool of questions. Took place in hackerrank (1 hr)
Solution for some question:
https://docs.google.com/document/d/10tM2S7DZrrTGN7EYtq9mSHfihEUx4fWtj7ExW6bmii8/edit?usp=sharing

1) Link: https://imgur.com/a/IOIStDo

ALL

1

2

2. Photo Album

Three is a collection of photos to place into an empty photo album, one at a time by order of importance. Each time a pho inserted, all subsequent photos are shifted toward the right by one position. Given the id's of the photos and the position where each should be placed, find out the sequence of the photos in the album after all photos have been inserted.

Example

n = 5
index = [0, 1, 2, 1, 2]
identity = [0, 1, 2, 3, 4]

The sequence of the photos is as follows:

- The photos 0, 1 and 2 keep the same indexes 0, 1 and 2 respectively.
- The photo 3 is inserted in index 1 and the subsequent photos 1 and 2 are shifted right by one position.
- The photo 4 is inserted in position 2 and again the photos 1 and 2 are shifted right by one position.

```
Identity                Album
0                       [0]
1                       [0, 1]
2                       [0, 1, 2]
3                       [0, 3, 1, 2]
4                       [0, 3, 4, 1, 2]
```

Function Description

Complete the function *photoAlbum* in the editor below. The function must return an array of integers denoting the sequer

18m left

ALL

1

2

Function Description

Complete the function *photoAlbum* in the editor below. The function must return an array of integers denoting the sequer *identity* values in which the photos are arranged.

photoAlbum has the following parameter(s):

index int[]: an array of integers
identity int[]: an array of integers

Constraints

- $1 \le n \le 2 \times 10^5$
- $0 \le index[i], identity[i] < n \quad (0 \le i < n)$

▼ Input Format For Custom Testing

The first line contains an integer, *n*, denoting the number of elements in the array *index*.
Each line *i* of the *n* subsequent lines (where $0 \le i < n$) contains an integer describing *index[i]*.
The next line contains an integer, *n*, denoting the number of elements in the array *identity*.
Each line *i* of the *n* subsequent lines (where $0 \le i \le n$) contains an integer describing *identity[i]*.

▼ Sample Case 0

Sample Input 0

```
3
0
```

ALL

1

2

Sample Input 0

```
3
0
1
1
3
0
1
2
```

Sample Output 0

```
0
2
1
```

Explanation 0

n = 3
index = [0, 1, 1]
n = 3
identity = [0, 1, 2]

The output array goes through the following steps: *[0] → [0, 1] → [0, 2, 1]*.

▶ **Sample Case 1**

▶ **Sample Case 2**

The output array goes through the following steps: *[0] → [0, 1] → [0, 2, 1]*.

18m left

ALL

1

2

▼ **Sample Case 1**

Sample Input 1

```
2
0
0
2
0
1
```

Sample Output 1

```
1
0
```

Explanation 1

n = 2
index = [0, 0]
n = 2
identity = [0, 1]

The output array goes through the following steps: *[0] → [1, 0]*.

▼ **Sample Case 2**

Sample Input 2

```
3
0
1
0
```

ALL

1

2

The output array goes through the following steps: *[0] → [1, 0]*.

▼ Sample Case 2

Sample Input 2

```
3
0
1
0
3
0
1
2
```

Sample Output 2

```
2
0
1
```

Explanation 2

n = 3
index = [0, 1, 0]
n = 3
identity = [0, 1, 2]

The output array goes through the following steps: *[0] → [0, 1] → [2, 0, 1]*.

18m left

ALL

1

2

1. Validating Beautiful Strings with RegEx

We consider a string to be *beautiful* if it starts and ends with the same character. For example, *a*, *aa*, and *bababbb* are bea
but *ab* and *baba* are not.

Complete the code in the editor below by replacing the blank (i.e., "_____") with a regular expression that matches beau
strings according to the criterion above. Locked code in the editor prints *True* for each correct match and *False* for each
incorrect match.

Constraints

- $1 \leq query \leq 10^3$
- $1 \leq |string| \leq 10^3$
- Each character $string[i] \in \{a,b\}$

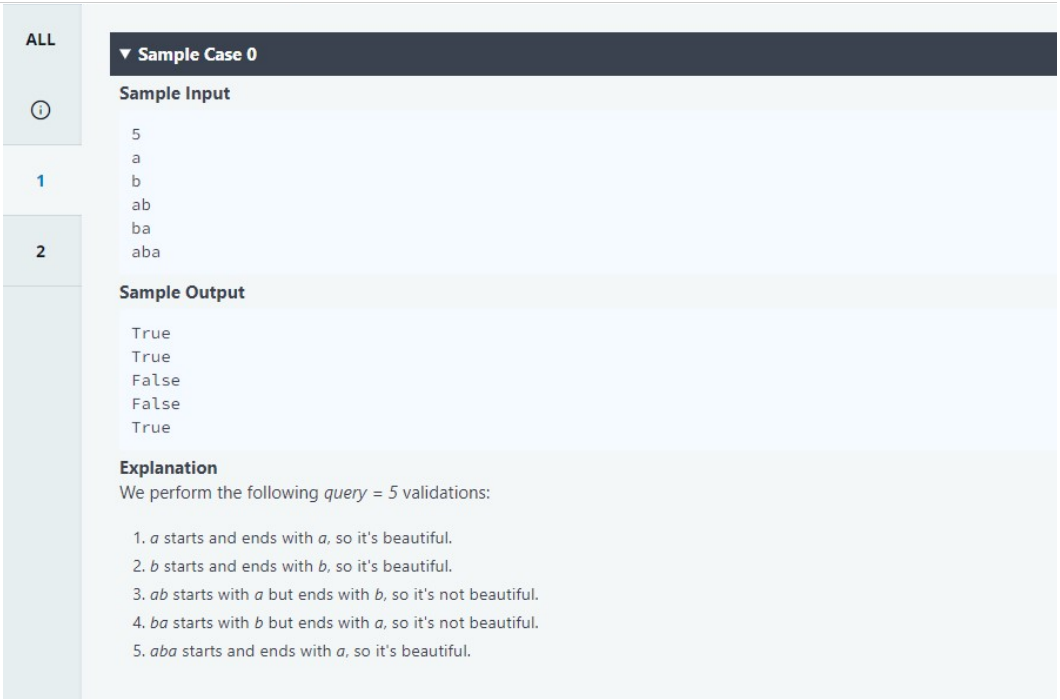
▼ Input Format for Custom Testing

Input from stdin will be processed as follows and passed to the function.

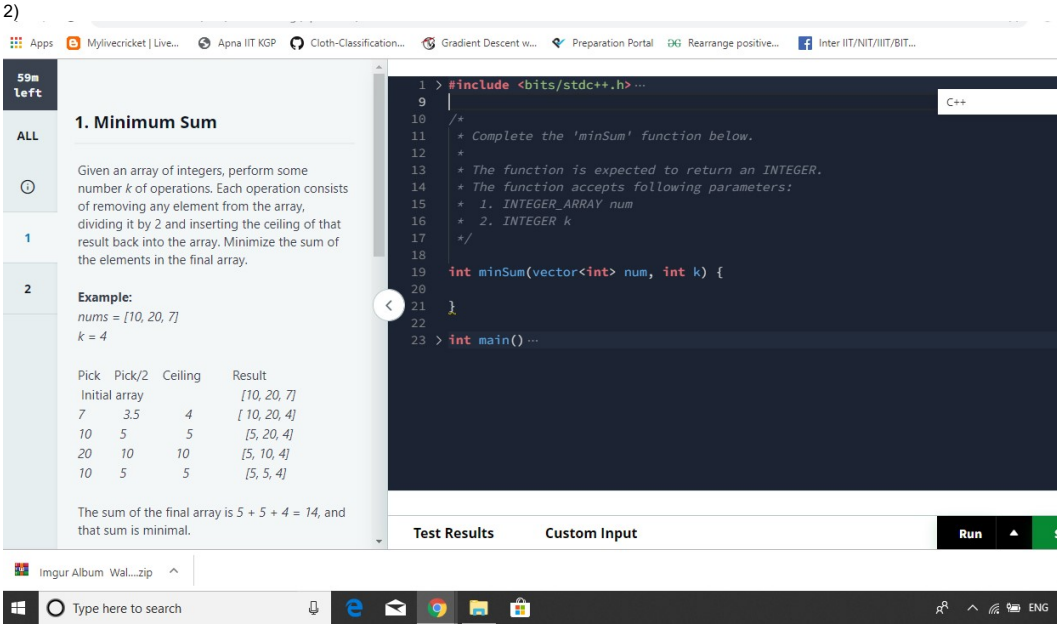
The first line contains an integer *query*, the number of strings to be tested.
Each of the next *query* lines contains a string to validate.

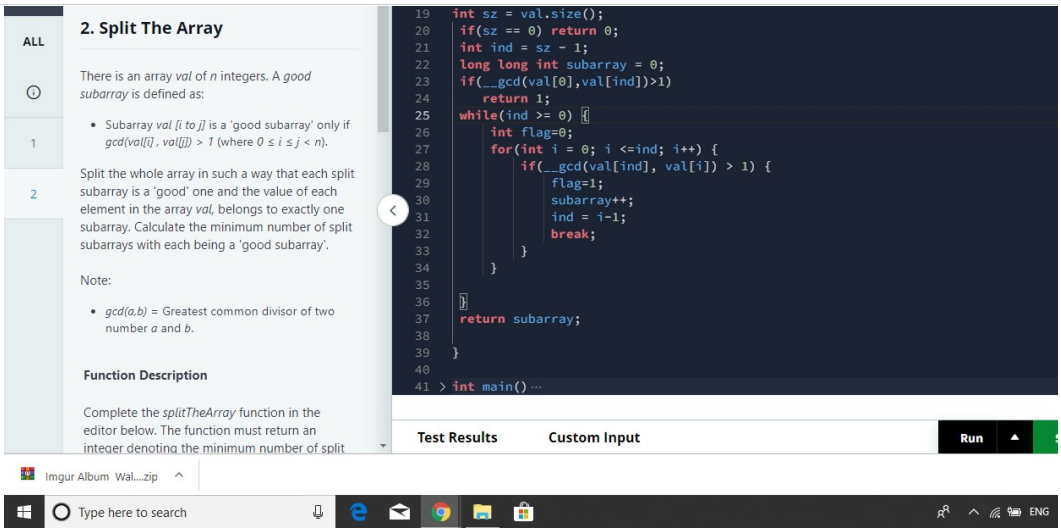
▼ Sample Case 0

Sample Input


ALL
1
2
Sample Case 0
Sample Input
5
a
b
ab
ba
aba
Sample Output
True
True
False
False
True
Explanation
We perform the following query = 5 validations:
1. a starts and ends with a, so it's beautiful.
2. b starts and ends with b, so it's beautiful.
3. ab starts with a but ends with b, so it's not beautiful.
4. ba starts with b but ends with a, so it's not beautiful.
5. aba starts and ends with a, so it's beautiful.

2)


59m left
ALL
1
2
1. Minimum Sum
Given an array of integers, perform some number k of operations. Each operation consists of removing any element from the array, dividing it by 2 and inserting the ceiling of that result back into the array. Minimize the sum of the elements in the final array.
Example:
nums = [10, 20, 7]
k = 4
Pick Pick/2 Ceiling Result
Initial array [10, 20, 7]
7 3.5 4 [10, 20, 4]
10 5 5 [5, 20, 4]
20 10 10 [5, 10, 4]
10 5 5 [5, 5, 4]
The sum of the final array is 5 + 5 + 4 = 14, and that sum is minimal.
#include <bits/stdc++.h>
C++
/*
* Complete the 'minSum' function below.
*
* The function is expected to return an INTEGER.
* The function accepts following parameters:
* 1. INTEGER_ARRAY num
* 2. INTEGER k
*/
int minSum(vector<int> num, int k) {
}
int main()
Test Results
Custom Input
Run
Type here to search



2. Split The Array

There is an array *val* of *n* integers. A *good subarray* is defined as:

- Subarray *val [i to j]* is a 'good subarray' only if *gcd(val[i] , val[j]) > 1* (where *0 ≤ i ≤ j < n*).

Split the whole array in such a way that each split subarray is a 'good' one and the value of each element in the array *val*, belongs to exactly one subarray. Calculate the minimum number of split subarrays with each being a 'good subarray'.

Note:

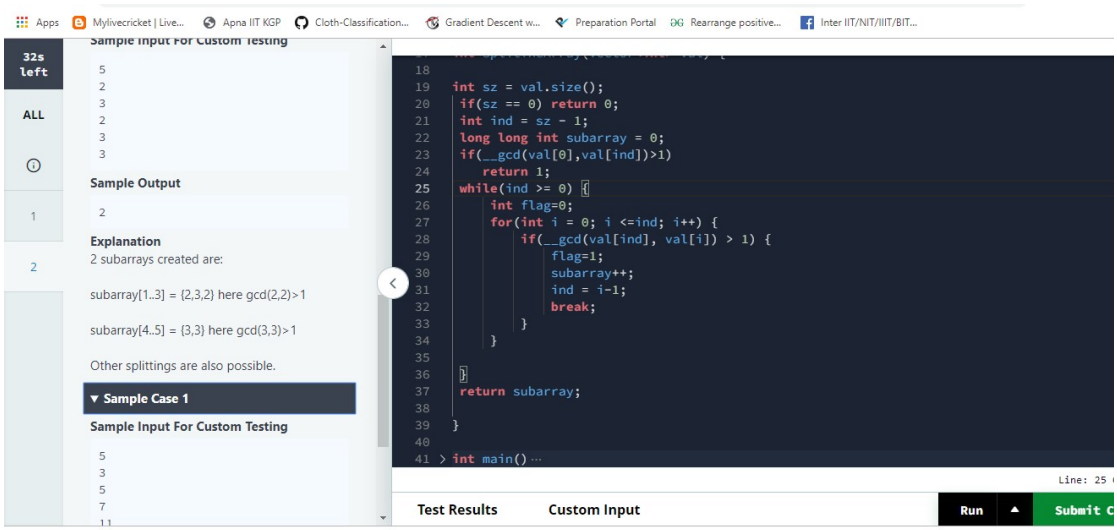
- *gcd(a,b)* = Greatest common divisor of two number *a* and *b*.

Function Description

Complete the *splitTheArray* function in the editor below. The function must return an integer denoting the minimum number of split

```
int sz = val.size();
if(sz == 0) return 0;
int ind = sz - 1;
long long int subarray = 0;
if(__gcd(val[0],val[ind])>1)
   return 1;
while(ind >= 0) {
    int flag=0;
    for(int i = 0; i <=ind; i++) {
        if(__gcd(val[ind], val[i]) > 1) {
            flag=1;
            subarray++;
            ind = i-1;
            break;
        }
    }

}
return subarray;
}
> int main() ···
```

Test Results Custom Input Run



32s left

Sample Output

2

Explanation

2 subarrays created are:

subarray[1..3] = {2,3,2} here gcd(2,2)>1

subarray[4..5] = {3,3} here gcd(3,3)>1

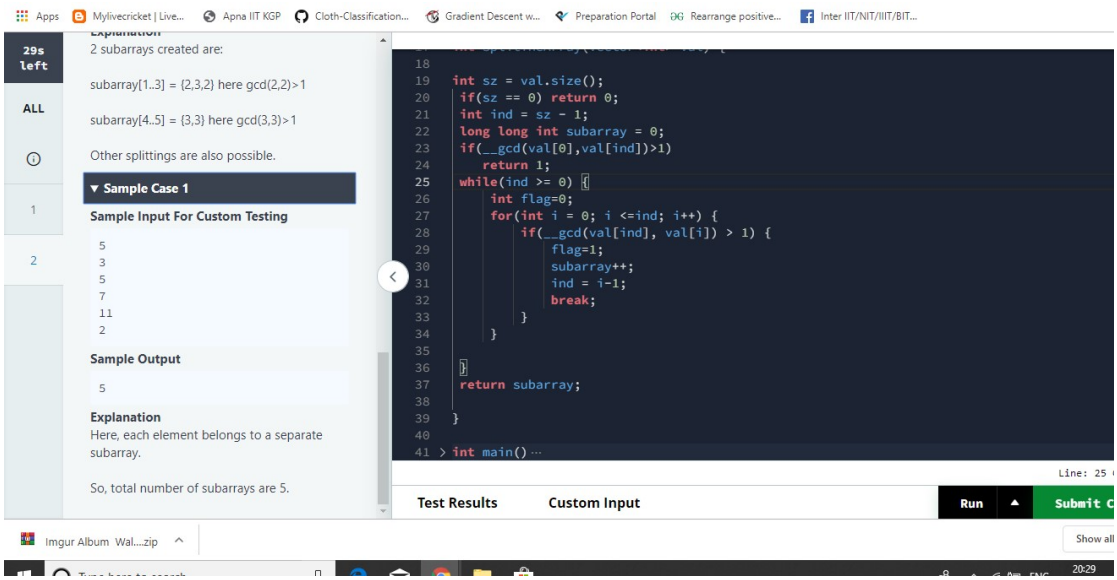
Other splittings are also possible.

▼ Sample Case 1

Sample Input For Custom Testing

```
5
3
5
7
11
```

Test Results Custom Input Run Submit



29s left

2 subarrays created are:

subarray[1..3] = {2,3,2} here gcd(2,2)>1

subarray[4..5] = {3,3} here gcd(3,3)>1

Other splittings are also possible.

▼ Sample Case 1

Sample Input For Custom Testing

```
5
3
5
7
11
2
```

Sample Output

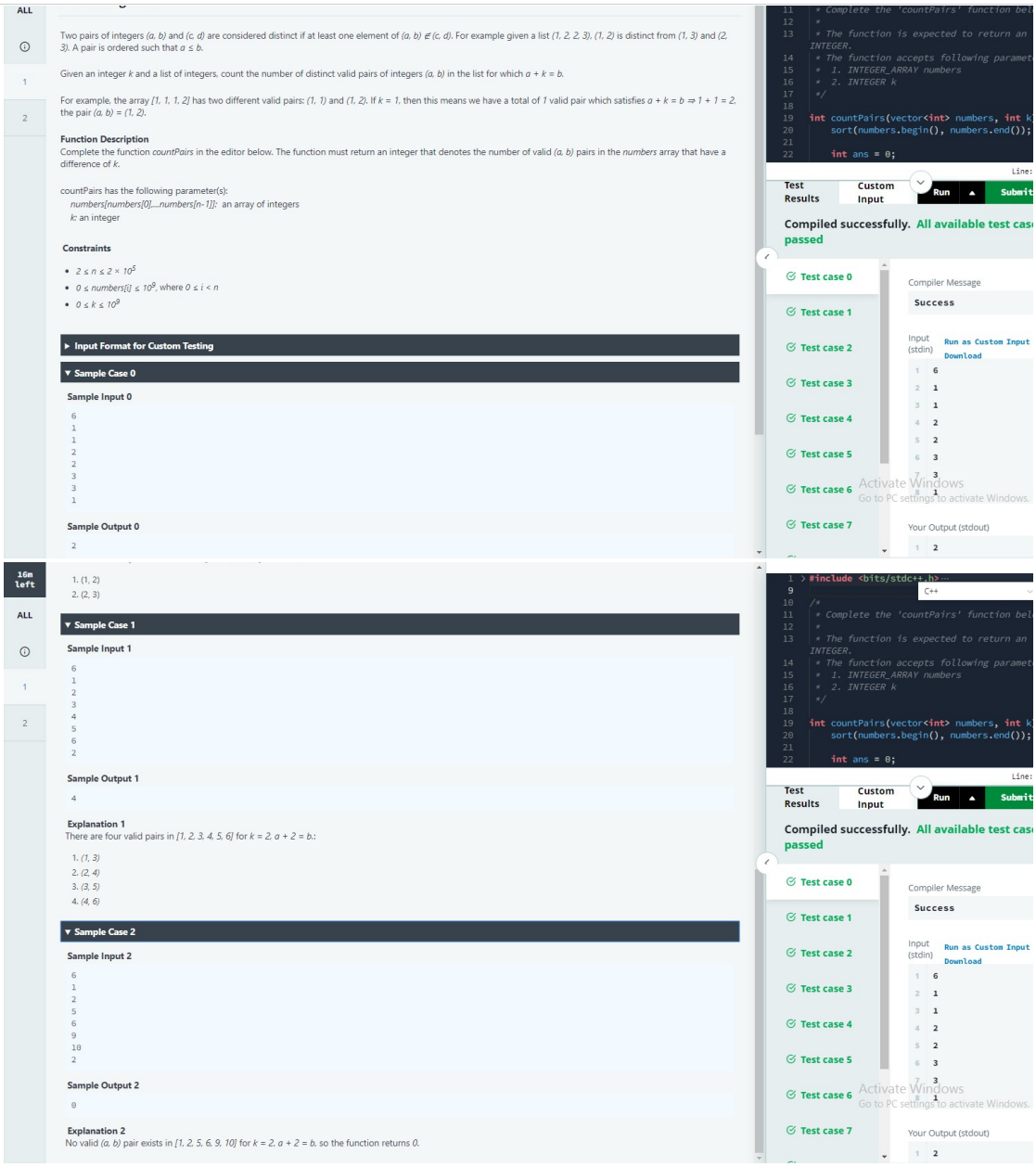
5

Explanation

Here, each element belongs to a separate subarray.

So, total number of subarrays are 5.

Test Results Custom Input Run Submit



Two pairs of integers *(a, b)* and *(c, d)* are considered distinct if at least one element of *(a, b)* ∉ *(c, d)*. For example given a list *(1, 2, 2, 3)*, *(1, 2)* is distinct from *(1, 3)* and *(2, 3)*. A pair is ordered such that $a \leq b$.

Given an integer *k* and a list of integers, count the number of distinct valid pairs of integers *(a, b)* in the list for which $a + k = b$.

For example, the array *[1, 1, 1, 2]* has two different valid pairs: *(1, 1)* and *(1, 2)*. If $k = 1$, then this means we have a total of *1* valid pair which satisfies $a + k = b \Rightarrow 1 + 1 = 2$, the pair *(a, b) = (1, 2)*.

Function Description

Complete the function *countPairs* in the editor below. The function must return an integer that denotes the number of valid *(a, b)* pairs in the *numbers* array that have a difference of *k*.

countPairs has the following parameter(s):

numbers[numbers[0],...numbers[n-1]]: an array of integers
k: an integer

Constraints

- $2 \leq n \leq 2 \times 10^5$
- $0 \leq numbers[i] \leq 10^9$, where $0 \leq i < n$
- $0 \leq k \leq 10^9$

▸ Input Format for Custom Testing

▾ Sample Case 0

Sample Input 0

```
6
1
1
2
2
3
3
1
```

Sample Output 0

```
2
```

1. (1, 2)
2. (2, 3)

▾ Sample Case 1

Sample Input 1

```
6
1
2
3
4
5
6
2
```

Sample Output 1

```
4
```

Explanation 1

There are four valid pairs in *[1, 2, 3, 4, 5, 6]* for $k = 2$, $a + 2 = b$.:

1. *(1, 3)*
2. *(2, 4)*
3. *(3, 5)*
4. *(4, 6)*

▾ Sample Case 2

Sample Input 2

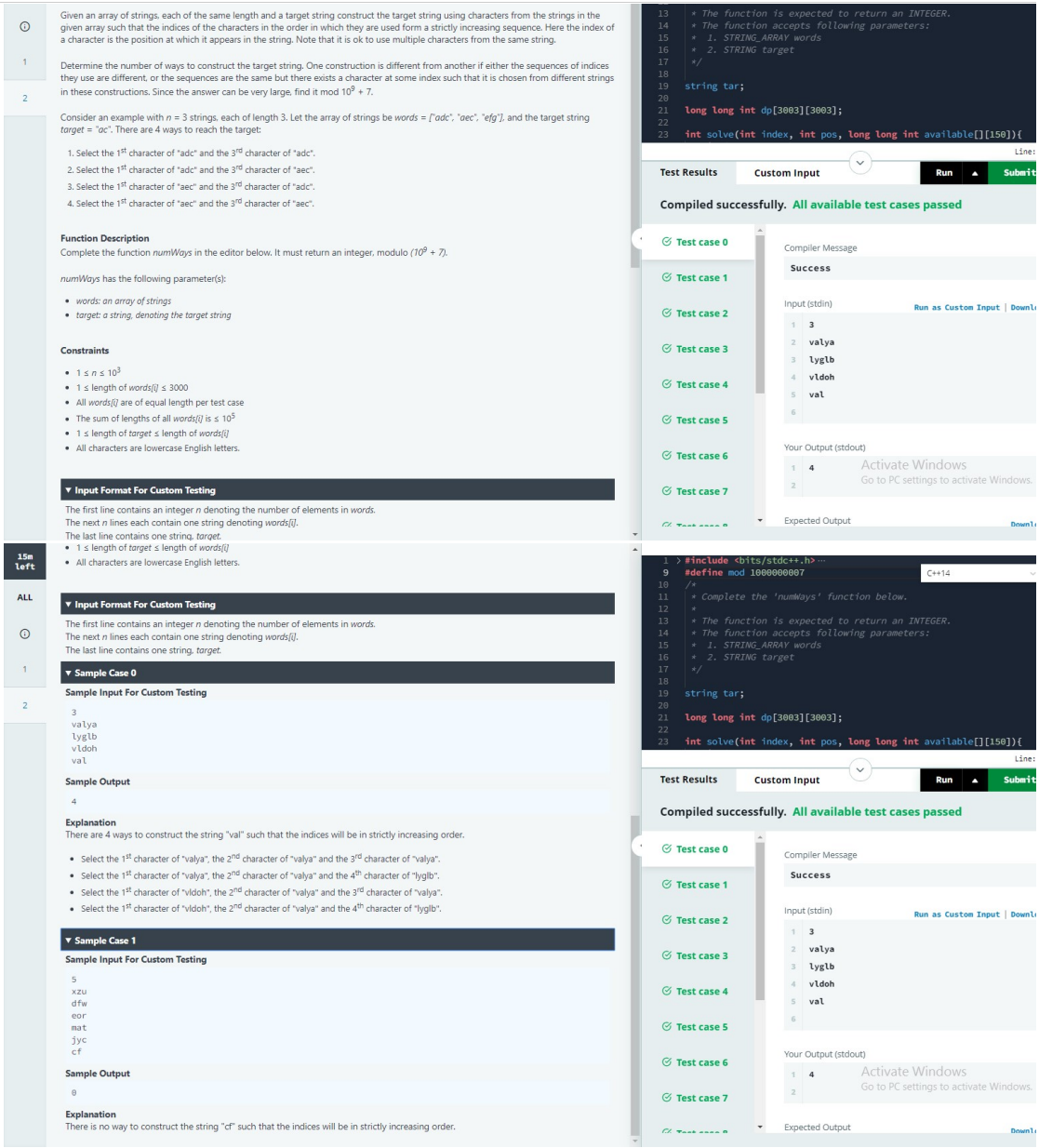
```
6
1
2
5
6
9
10
2
```

Sample Output 2

```
0
```

Explanation 2

No valid *(a, b)* pair exists in *[1, 2, 5, 6, 9, 10]* for $k = 2$, $a + 2 = b$, so the function returns *0*.



Given an array of strings, each of the same length and a target string construct the target string using characters from the strings in the given array such that the indices of the characters in the order in which they are used form a strictly increasing sequence. Here the index of a character is the position at which it appears in the string. Note that it is ok to use multiple characters from the same string.

Determine the number of ways to construct the target string. One construction is different from another if either the sequences of indices they use are different, or the sequences are the same but there exists a character at some index such that it is chosen from different strings in these constructions. Since the answer can be very large, find it mod $10^9 + 7$.

Consider an example with $n = 3$ strings, each of length 3. Let the array of strings be *words = ["adc", "aec", "efg"]*, and the target string *target = "ac"*. There are 4 ways to reach the target:

1. Select the 1st character of "adc" and the 3rd character of "adc".
2. Select the 1st character of "adc" and the 3rd character of "aec".
3. Select the 1st character of "aec" and the 3rd character of "adc".
4. Select the 1st character of "aec" and the 3rd character of "aec".

Function Description

Complete the function *numWays* in the editor below. It must return an integer, modulo *($10^9 + 7$)*.

numWays has the following parameter(s):

- *words: an array of strings*
- *target: a string, denoting the target string*

Constraints

- $1 \le n \le 10^3$
- $1 \le$ length of *words[i]* ≤ 3000
- All *words[i]* are of equal length per test case
- The sum of lengths of all *words[i]* is $\le 10^5$
- $1 \le$ length of *target* $\le$ length of *words[i]*
- All characters are lowercase English letters.

Input Format For Custom Testing

The first line contains an integer *n* denoting the number of elements in *words*.
The next *n* lines each contain one string denoting *words[i]*.
The last line contains one string, *target*.

Sample Case 0

Sample Input For Custom Testing

```
3
valya
lyglb
vldoh
val
```

Sample Output

```
4
```

Explanation

There are 4 ways to construct the string "val" such that the indices will be in strictly increasing order.

- Select the 1st character of "valya", the 2nd character of "valya" and the 3rd character of "valya".
- Select the 1st character of "valya", the 2nd character of "valya" and the 4th character of "lyglb".
- Select the 1st character of "vldoh", the 2nd character of "valya" and the 3rd character of "valya".
- Select the 1st character of "vldoh", the 2nd character of "valya" and the 4th character of "lyglb".

Sample Case 1

Sample Input For Custom Testing

```
5
xzu
dfw
eor
mat
jyc
cf
```

Sample Output

```
0
```

Explanation

There is no way to construct the string "cf" such that the indices will be in strictly increasing order.

```
/*
 * The function is expected to return an INTEGER.
 * The function accepts following parameters:
 *  1. STRING_ARRAY words
 *  2. STRING target
 */

string tar;

long long int dp[3003][3003];

int solve(int index, int pos, long long int available[][150]){
```

Test Results | Custom Input | Run | Submit

Compiled successfully. All available test cases passed

Test case 0 … Test case 7

Compiler Message: Success

Input (stdin): Run as Custom Input

```
3
valya
lyglb
vldoh
val
```

Your Output (stdout)

```
4
```

Activate Windows
Go to PC settings to activate Windows.

Expected Output

15m left | ALL

```
#include <bits/stdc++.h>
#define mod 1000000007
```

C++14

GE

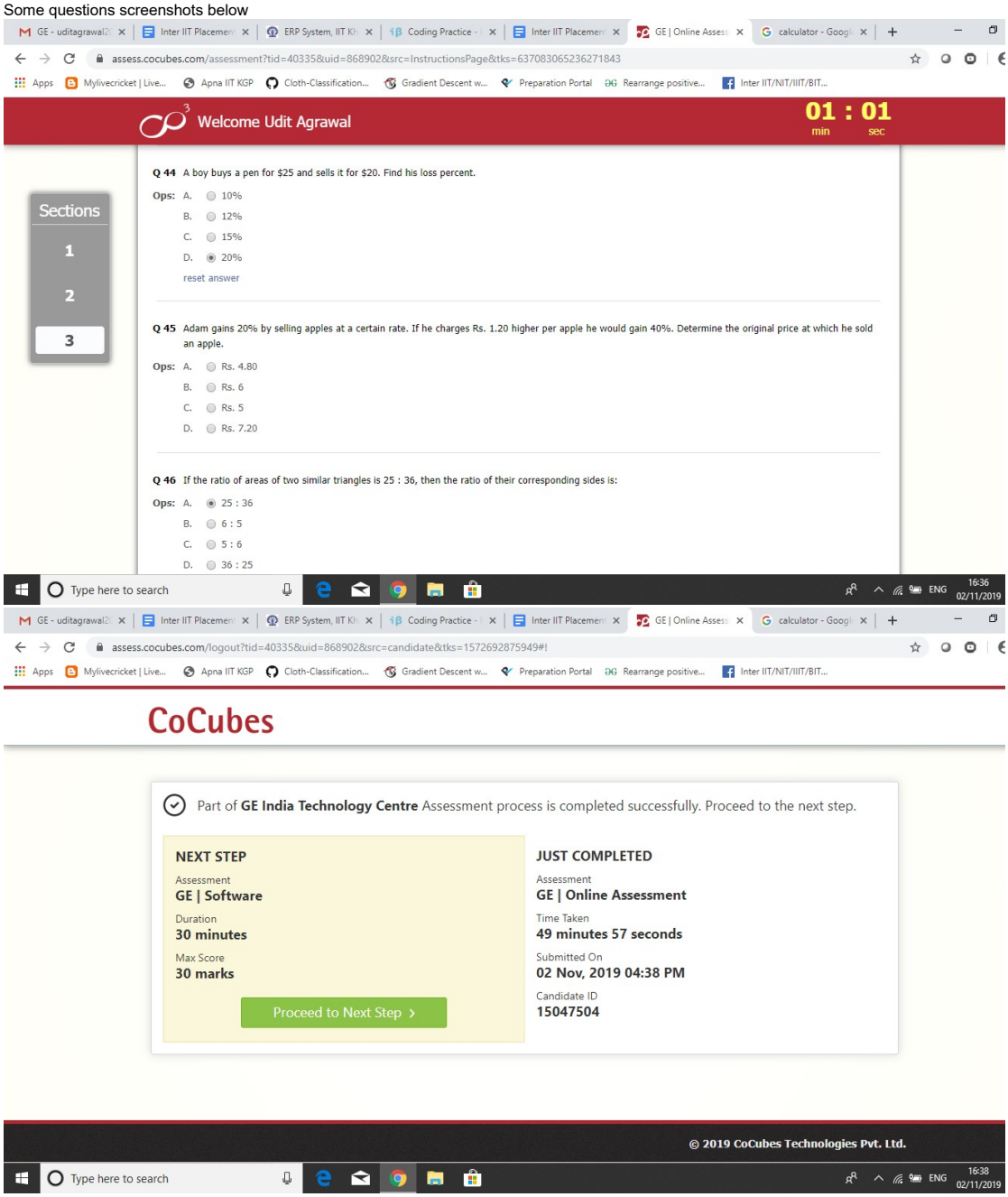
IITG

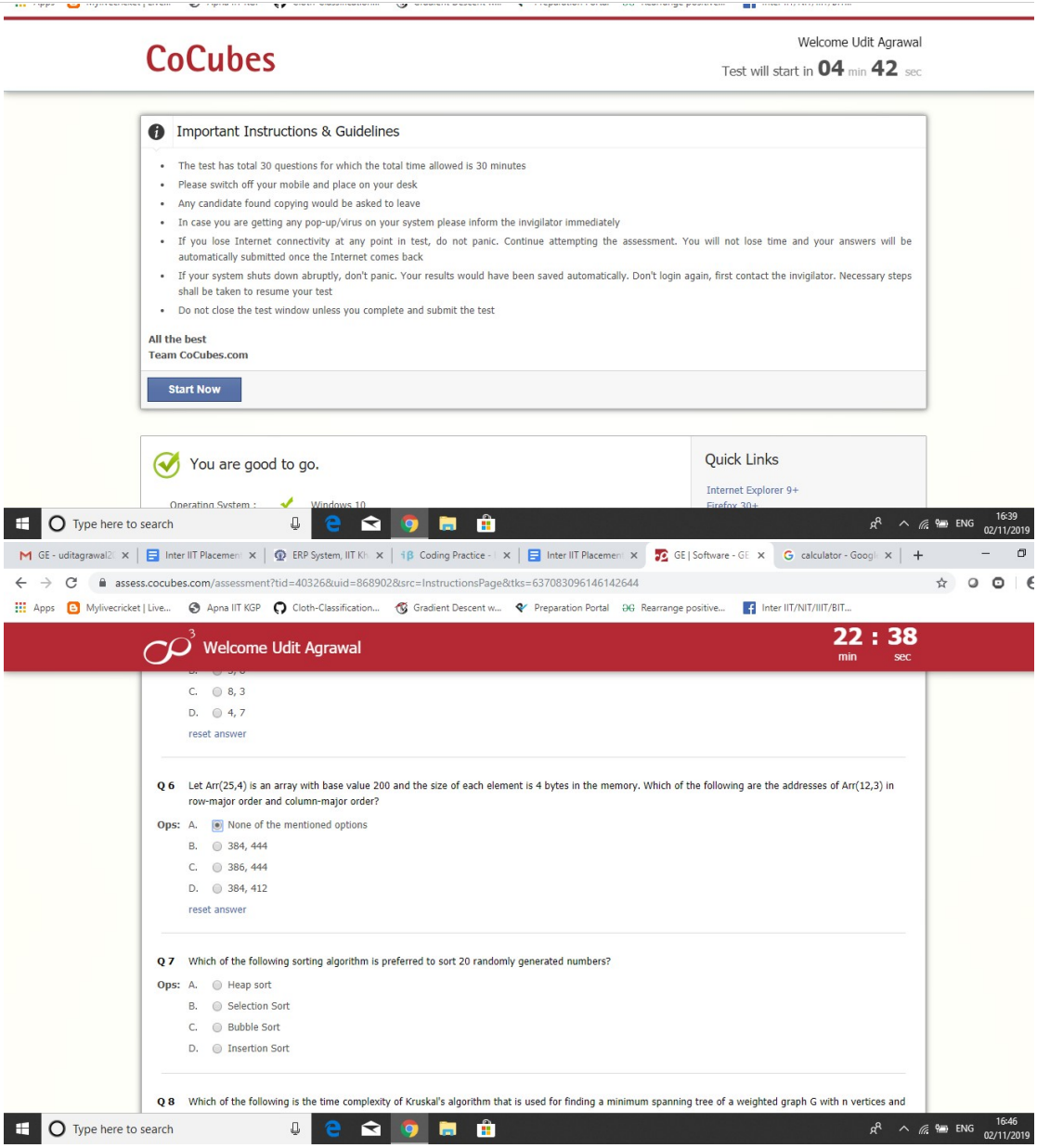
Mtech Allowed
CPI-7.0
125 min test.
50 min verbal, quant, logical 50 Ques
30 min technical 30 Ques
45min coding 2 ques
Everybody got different ques

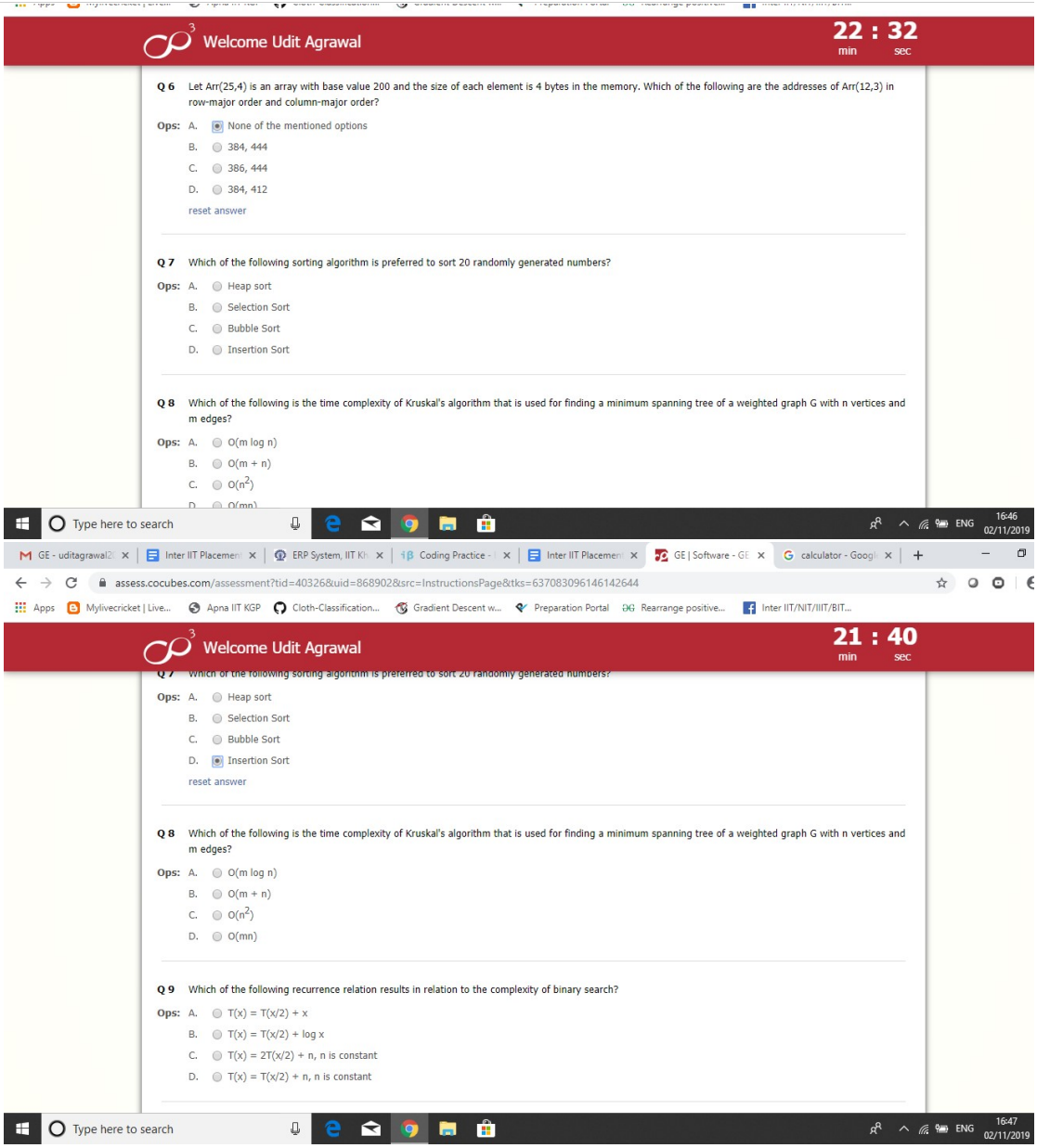
IITkgp

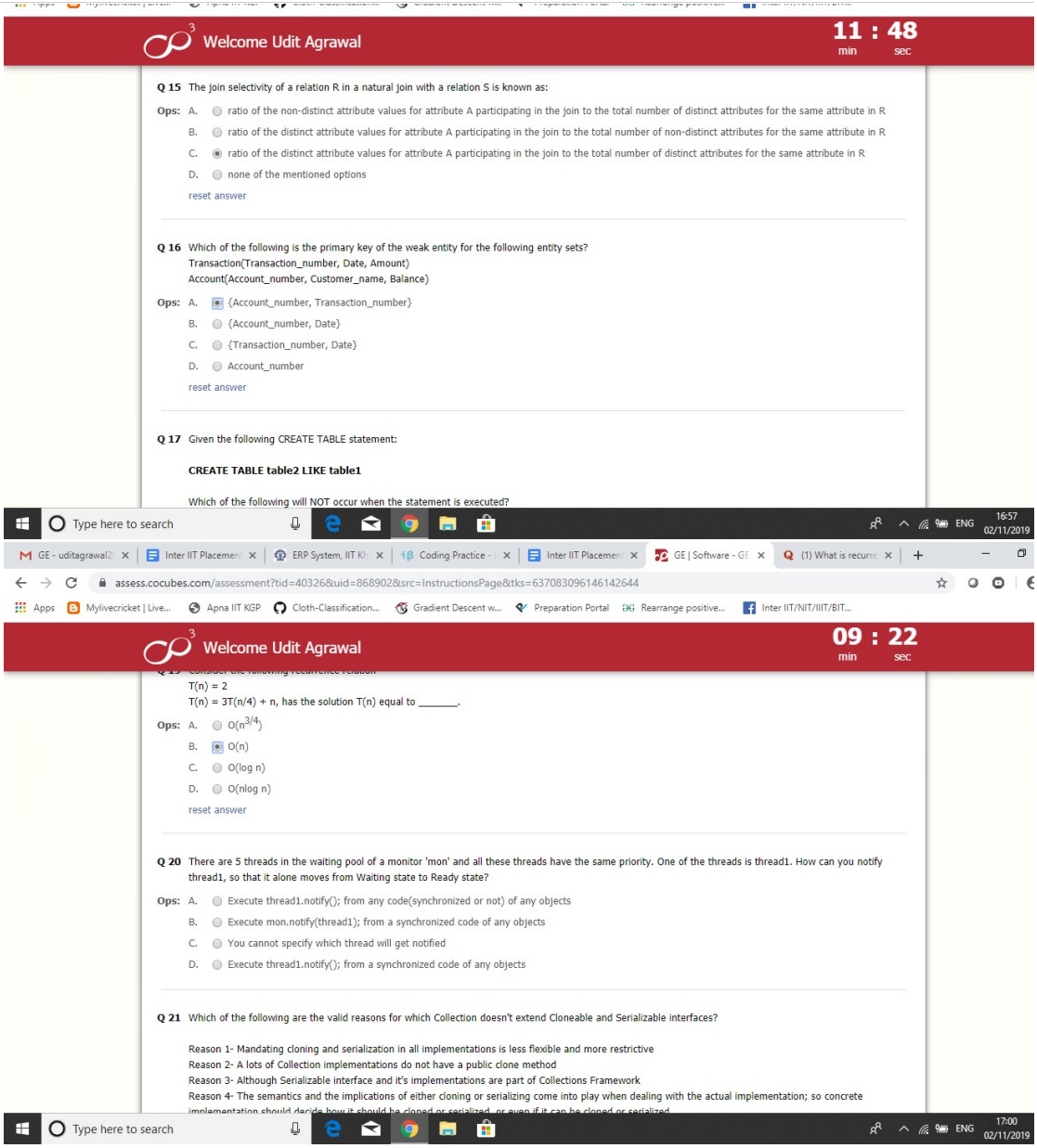
45min coding 2 ques

Platform: Cocubes
Some questions screenshots below









Welcome Udit Agrawal — 11 : 48 min sec

Q 15 The join selectivity of a relation R in a natural join with a relation S is known as:

Ops: A. ratio of the non-distinct attribute values for attribute A participating in the join to the total number of distinct attributes for the same attribute in R
B. ratio of the distinct attribute values for attribute A participating in the join to the total number of non-distinct attributes for the same attribute in R
C. ratio of the distinct attribute values for attribute A participating in the join to the total number of distinct attributes for the same attribute in R
D. none of the mentioned options

reset answer

Q 16 Which of the following is the primary key of the weak entity for the following entity sets?
Transaction(Transaction_number, Date, Amount)
Account(Account_number, Customer_name, Balance)

Ops: A. {Account_number, Transaction_number}
B. {Account_number, Date}
C. {Transaction_number, Date}
D. Account_number

reset answer

Q 17 Given the following CREATE TABLE statement:

CREATE TABLE table2 LIKE table1

Which of the following will NOT occur when the statement is executed?

Type here to search — ENG 16:57 02/11/2019

assess.cocubes.com/assessment?tid=40326&uid=868902&src=InstructionsPage&tks=637083096146142644

Apps Mylivecricket | Live... Apna IIT KGP Cloth-Classification... Gradient Descent w... Preparation Portal Rearrange positive... Inter IIT/NIT/IIIT/BIT...

Welcome Udit Agrawal — 09 : 22 min sec

T(n) = 2
T(n) = 3T(n/4) + n, has the solution T(n) equal to _____.

Ops: A. $O(n^{3/4})$
B. O(n)
C. O(log n)
D. O(nlog n)

reset answer

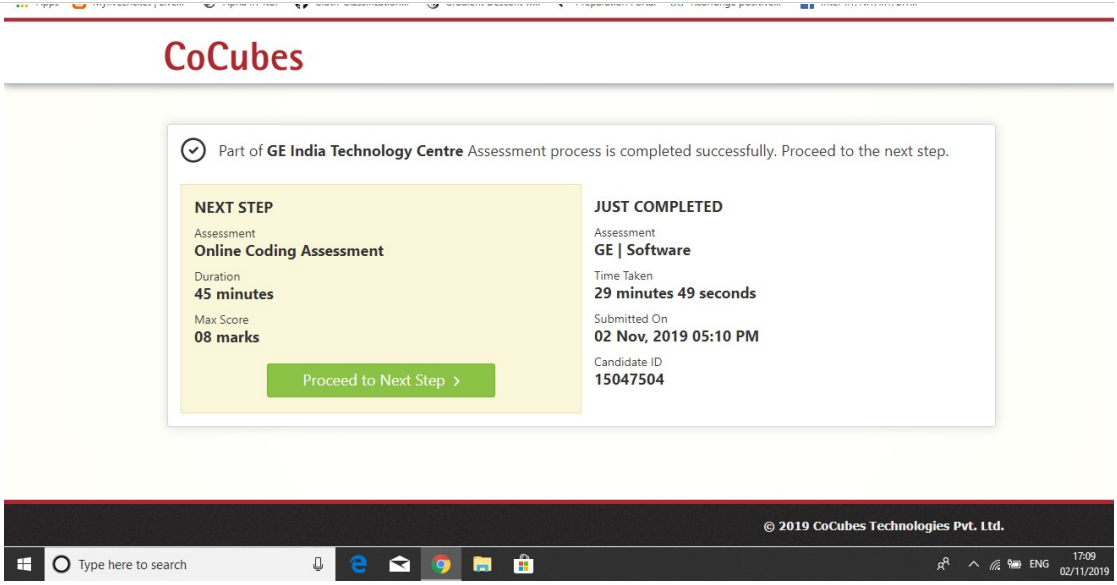
Q 20 There are 5 threads in the waiting pool of a monitor 'mon' and all these threads have the same priority. One of the threads is thread1. How can you notify thread1, so that it alone moves from Waiting state to Ready state?

Ops: A. Execute thread1.notify(); from any code(synchronized or not) of any objects
B. Execute mon.notify(thread1); from a synchronized code of any objects
C. You cannot specify which thread will get notified
D. Execute thread1.notify(); from a synchronized code of any objects

Q 21 Which of the following are the valid reasons for which Collection doesn't extend Cloneable and Serializable interfaces?

Reason 1- Mandating cloning and serialization in all implementations is less flexible and more restrictive
Reason 2- A lots of Collection implementations do not have a public clone method
Reason 3- Although Serializable interface and it's implementations are part of Collections Framework
Reason 4- The semantics and the implications of either cloning or serializing come into play when dealing with the actual implementation; so concrete implementation should decide how it should be cloned or serialized, or even if it can be cloned or serialized

Type here to search — ENG 17:00 02/11/2019



OPTIVER

IIT-B

30/10/2019
Open for everyone
No CPI criteria
Questions for Software Engineer Profile can be found at: https://imgur.com/a/wzyuxsN

OnePlus

IITD

Conducted on 03/11/19. 1 hour coding test on hacker earth. 2 questions (50 & 100 marks each). Full screen mode. Different sets.
1.5 hr test on SHL platform having behavioural section, numerical reasoning (DI) and verbal reasoning (questions based on paragraph)
Pool of coding questions:

1. Count subarrays with sum less than or equal to k. Use O(n) approach.
2. Find the right most number with largest prime factors in every window of size k in an array of size n.

Texas Instruments

IITD

Conducted on 03/11/19 using hirepro platform. Full screen mode.
3 Profiles

1. Hardware only.
2. Hardware and Software.
3. Software only. (1.5 hr test)

For Software only test 20 MCQs to be solved in 90 minutes. 10 MCQs were based on Aptitude. 10 on OS, DSA and C Programming.

IIT-D
Section 1 - quant (20 questions, 30 minutes)
Section 2 - ML (10 questions, 10 mins)
Section 3 - Business Case (1 question, 20 minutes)
We could attempt both section 2 and 3 or either of them
Section 1 was compulsory for all
All questions had negative marking (+1/-0.25)

Platform?
metll

Google

IITG, IITKgp, IIT BHU, IITK, IITR

Platform: Cocubes
2 Questions 45 Min
Questions were different for all

1. Given fruits name and price. you need to print in lexicographic order of name and lowest price , highest price and average.
Input:
banana 50
apple 80
banana 90
apple 70
apple 100
output:
apple 70 100 83
banana 50 90 70
Constraints? What was the return type of the function. In Cocubes they usually ask us to complete the function right ?
No. You have to take input from stdin. (Simply take one string and one integer using cin, and continue.. inputs were space separated, wasted my time by taking it line by line.)
Output the final ans with cout.
Ok Thanks. So we were allowed to write the main() function ? yes

Simple Python solution: https://ide.geeksforgeeks.org/sS7J1oBntK Please verify it.
Code : https://ideone.com/5vxQ9R Please verify it.

Query : CoCubes allows STLs ?? Yes

2. 1s.
Input:
array= {50,5,25,9,40} num=100
Output:
90 {50+40} both are non adjacent.
Constraints? Were negative numbers present in the array ? nothing mentioned in the question
I think there won't be any negative numbers in the array. Else the solution becomes complicated
Soln? or Approach , Modify 0-1 knapsack https://ideone.com/ndvHCQ

3. The tree nodes were given in stdin. Level order traversal was given. Read from stdin. Find gcd of every two children for every parent. Report the difference between maximum gcd - minimum gcd.
According to the language given. I assumed it was perfect binary tree(null = -1 was given). now just apply gcd on pairs of same sibling if(no one is -1) and output max gcd - min gcd…. passes all testcase

https://leetcode.com/discuss/interview-question/396996/

I do not think we need to build the tree for doing this task. It can be done directly.

4. Cost of hiring, Salary and severance fee was given. Minimum employee count(required for that particular month is given. p.s. you can have more employees than this value but not less) of N months are given. Calculate the min cost for running the company.

5. Dependencies of nodes(N<=26) are given. M nodes are given who'll delay the work. Find the number of nodes which will get delayed. A->B
B->C
C->D Ye
Now if B gets delayed than C,D will get delayed because of it
(Simple dfs from Delay Nodes and store in set)
Is this related to Topological sorting?

Please add more questions

Language: C, C++11, python, java
STL was working after adding #include<bits/stdc++.h>
Everyone had a different set of questions.
New Set:

1. Given a tree in a form of 2d array. Find the gcd of every pair of siblings and print max(gcd)-min(gcd). If no nodes return -1. If no siblings return 0. -1 represents null node. Eg. [1][2 4][4 -1 5 6], gcd(2,4)=2, gcd(5,6)=1,. ans=2-1=1.
2. same as IITG apple banana question.
3. You are given N strawberry bushes, and a robot with a maximum carrying capacity. The robot cannot pick up strawberries from consecutive bushes. Suppose maximum carrying capacity is 200 and you are given the bush as 60 20 10 70 50 30. The maximum strawberries robot can collect is 160. Another example would be let the carrying capacity be 10 and the bush be 15 20. In this case the answer is 0. Value of bushes will be non-negative right ? (Yes)

IITD

Same as above. Following are new questions:

1. https://stackoverflow.com/questions/51675765/minimum-swaps-to-relative-sort-two-arrays

IIIT Hyderabad 9-November (copied from public doc)

1. https://leetcode.com/discuss/interview-question/397156/
2. Same as GCD problem from IIT Roorkee
3. Same as Dependencies and delayed projects from IIT BHU
4. All questions from existing inter iit doc - variations of those 5 + relative sort (min. Swaps to make increasing)

Commvault

IITG

Platform: geeekd.com
Which Questions?
6 Questions 75 min.
3 ques in c and 3 ques in cpp
you cannot choose language.

Netskope

IIT BHU

Netskope IITBHU

Atlassian

IITR

B.Tech - CSE, ECE, EE (CGPA 7 and above)
IMSc - Applied Mathematics (CGPA 7 and above)
HackerRank , 1.5 hours , 3 problems

1. Find minimum window size in the string S which consists of all the letters present in the string

A.(75 points)

Work Applications

IITK

75 min test on their own platform, C++/Java allowed only(python not allowed)
Platform was bad, as the standard output were not visible directly, but people figured out that it was printing at the bottom of the console. Building and testing took a lot of time so try to debug your code yourself as much as possible.(What were the questions?)

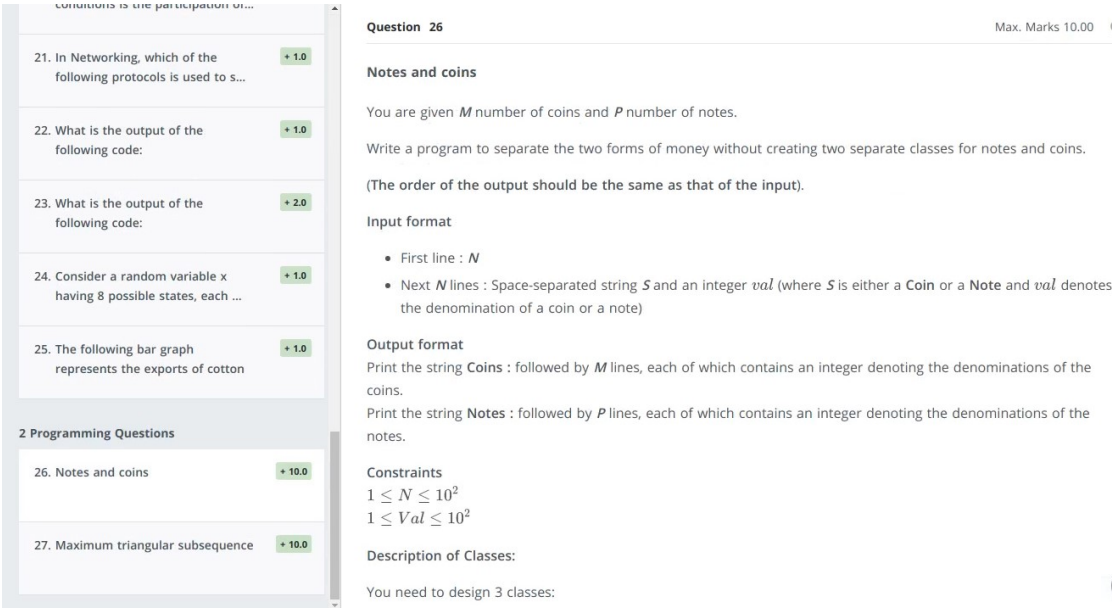
2 Coding Questions + 5 C++ mcq questions based on OOPs

Siemens Healthineers

IIT BHU.

60 mins test on Hackerearth consisting of 25 MCQ(OS,DS Algo,Testing) and 2 coding problems.

1. Maximum length of subsequence that satisfy Triangular inequality. v[i],v[j],v[k] such that i<j<k.
Approach : Sort the container and for every triplet that satisfy inequality find the largest number which can fit in the triplet subsequence using lower_bound()
2. Simple implementation problem where we had to take inputs in two array and print them.



following protocols is used to s...

22. What is the output of the following code: + 1.0

23. What is the output of the following code: + 2.0

24. Consider a random variable x having 8 possible states, each ... + 1.0

25. The following bar graph represents the exports of cotton + 1.0

2 Programming Questions

26. Notes and coins + 10.0

27. Maximum triangular subsequence + 10.0

Methods

add(Type t): Add the coin or note to the bag.

Display(): Display the denomination of the coin or note.

Sample Input

```
7
Note 83
Coin 19
Coin 85
Note 8
Note 30
Coin 56
Coin 53
```

Sample Output

```
Coins :
19
85
56
53
Notes :
83
8
30
```

Explanation

The denomination on Notes and Coins are displayed in the required order.

Note: Your code should be able to convert the sample input into the sample output. However, this is not enough to pass the challenge, because the code will be run on multiple test cases. Therefore, your code must solve this problem statement.

Time Limit: 1.0 sec(s) for each input file

Memory Limit: 256 MB

Source Limit: 1024 KB

Marking Scheme: Marks are awarded if any testcase passes

Allowed Languages: Bash, C, C++, C++14, Clojure, C#, D, Erlang, F#, Go, Groovy, Haskell, Java, Java 8, JavaScript(Rhino), JavaScript(Node.js), Julia, Kotlin, Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, PHP, Python, Python 3, Racket, Ruby, Rust, Scala, Swift, Swift-4.1, TypeScript, Visual Basic

Siemens.mkv

conditions is the participation of...

21. In Networking, which of the following protocols is used to s... + 1.0

22. What is the output of the following code: + 1.0

23. What is the output of the following code: + 2.0

24. Consider a random variable x having 8 possible states, each ... + 1.0

25. The following bar graph represents the exports of cotton + 1.0

2 Programming Questions

26. Notes and coins + 10.0

27. Maximum triangular subsequence + 10.0

Question 27 Max. Marks 10.00

Maximum triangular subsequence

You are given an array A of n integers. You have to find the size of the largest triangular subsequence.

Note: A subsequence S is called triangular if every triplet $\{s_i, s_j, s_k\}$ belonging to S satisfies triangle inequality and $i < j < k$.

Input format

- First line: An integer n denoting the size of the array A
- Next line: n space-separated integers denoting the array A

Output format

- Print a single integer denoting the answer to the problem.

Constraints

$3 \leq n \leq 10^5$

$1 \leq A[i] \leq 10^9$

Sample Input

```
5
9 19 8 10 13
```

Sample Output

```
4
```

Explanation

Every triplet in subsequence $\{9, 8, 10, 13\}$ satisfies triangle inequality. So, answer is 4.

Subsequence $\{9, 19, 8, 10, 13\}$ is not a triangular subsequence because 9+8<19.

Note: Your code should be able to convert the sample input into the sample output. However, this is not enough to pass the challenge, because the code will be run on multiple test cases. Therefore, your code must solve this problem statement.

Time Limit: 1.0 sec(s) for each input file

Memory Limit: 256 MB

Source Limit: 1024 KB

Marking Scheme: Marks are awarded if any testcase passes

Allowed Languages: Bash, C, C++, C++14, Clojure, C#, D, Erlang, F#, Go, Groovy, Haskell, Java, Java 8, JavaScript(Rhino), JavaScript(Node.js), Julia, Kotlin, Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, PHP, Python, Python 3, Racket, Ruby, Rust, Scala, Swift, Swift-4.1, TypeScript, Visual Basic

0:08:59 -0:52:43

Same pattern and same questions as above. Time 1 hour.

IITG

Peek's Theorem
Maximum length of subsequence that satisfy Triangular inequality. v[i],v[j],v[k] such that i<j<k.

Cloudera

IITD

2 hours test on Hackerrank platform. 2 sections. 1st section had 2 coding questions and 1 sql query to be written (all compulsory). 2nd section had 2 coding questions and 1 was to be attempted.
Coding Questions:

1. Prison Break asked previously in some other test on hacker rank.
2. Strings question from https://www.geeksforgeeks.org/cloudera-interview-experience/
3. One ad hoc question to be solved using priority queue.

SQL query same as in above link. Also the question to be solved using regex was same in above link, but it can be solved using c++ as well.

MasterCard

IIT BHU / IIT Delhi / IIT Roorkee

This screenrecord is for AI profile. Not analyst profile.
Taking screenshots from the video takes a lot of time, and I'm currently short on time. So please someone volunteer to take screenshots (or just see the questions from the screen record).
Mastercard AI IIT BHU

IITG (SDE)

Platform: techgig
60 min 2 coding ques
ques1: https://www.geeksforgeeks.org/find-k-bookings-possible-given-arrival-departure-times/
ques 2: Check given string containing lowercase, uppercase, and digits is Funny string or not.
A string is funny if it contains lowercase letter x,y,z and at least 3 vowels in uppercase and only even numbers.

Open Futures

IITD

Total 7 questions to be done in 2 hours. Written Subjective.

1. Find number of integral solutions of 1+x+x^2 = y^2
2. A person takes at least 1 aspirin for 30 days. In total he takes 45 aspirin. Prove that there exists a consecutive sequence of days when he took a total of 14 aspirin pills.

snap one after the other, find the expectation of the number of people living at the end
6. You choose number randomly between 0 and 1, such that each next value is lesser. x1>x2>x3>x4.. Find the expectation of the smallest number you pick
7. Pseudo code for maximum profit given an array denoting price of stock on i'th day. Condition: cannot buy immediately after selling, i.e. a cooldown period of 1 day is required.
example, 10,20,30,40,50,5,60 should return 55 and not 50.

ZestMoney

IITG

2 coding question, 90 mins, hackerrank, M.Tech allowed
Everyone got different questions

Questions:

1. https://imgur.com/a/ExKoeYB
2. Distinct pairs forming a target sum in an array
3. Largest squares of 1's in binary matrix

##can someone please post the solution for Segment Query Question.

IIT BHU

same as IIT G
Questions:

1. Series of coin arranged along a row, you are standing on 0th index and can either move 1 step to the right or prime number p steps such that the last digit of the prime number should be 3. Value of the coins can be positive and negative both. You have to reach n-1 index with collection of maximum value of coin. (n^2 solution got accepted).
2. My set second question was simple greedy sort question.

IBM IRL

IITD

Cognitive ability test, where you'll be given 5 time based games to play, mental ability types.
Learning ability test, where you'll be given fifty instances, each having two statements on opposite ends with a slider in between and you have to select which one do you agree with more.
Students shortlisted in this round will be giving one more test someday later.

FLIPKART

IITKGP

1). question same as this year appdynamics questions IITKgp

height: 1, 3, 3.
mud placed: **1 -> 1**, 2 -> 2, 3 -> 3, 4 -> 4, 5 -> 4, **6 -> 3**, 7 -> 4, 8 -> 5, 9 -> 4, **10 -> 3**
Bold ones are walls, normal ones are height of mud at their respective positions
ans = 5;

2) Maximum product of non overlapping palindromes
Same ques:https://stackoverflow.com/questions/53663721/find-the-maximum-product-of-two-non-overlapping-palindromic-subsequences
Passed all test cases: https://ide.geeksforgeeks.org/0rxOZVLbJW
3) Maximum size square submatrix of 1's in a given matrix of 1's and 0's
Same ques: https://www.geeksforgeeks.org/maximum-size-sub-matrix-with-all-1s-in-a-binary-matrix
Passed all test cases: https://ide.geeksforgeeks.org/cnRrXxeG8K

IIT BHU

https://drive.google.com/drive/folders/1y-WUBrtwlebxhV8vlewm_qraDR0vel9F?usp=sharing

Can someone from IIT BHU post working solution of Activate fountain??

https://leetcode.com/discuss/interview-question/363036/walmart-oa-2019-activate-fountains

Connected computers answer is connected components-1 right??

TOPPR

IIT (ISM) DHANBAD - copied from public doc

Given a google form, in which we were asked to upload word file for two given problems. Test is of two hours, we need to save the code on a word file and upload it in google form, no test cases or anything. We were advised to use IDEONE to check the code.

Problem 1 - Twin Words

Two words are defined as "Twin Words" of each other if they satisfy:-

1. Same number of consonants (letters which are not vowels like b,c x etc.) in both words.
2. Same set of consonants in both words

A phrase is said to be a "Twin Phrase" if all the words of a phrase are "Twin Words" of any word in the other phrase

Twin

For example ->>

1. BBC and BCC are Twin words as they have the same set of consonants - b and c; and the same number of consonants - 3
2. Red and bread are not Twin words

Cover the following cases -

1. Write a program to check if two words are "Twin words" of each other
2. Write a program to take an input file of list of words (one word per line) and print out sets of "Twin Words"
3. Now assume that input to previous question is a list of phrases instead of words. And a phrase is said to be a "Twin Phrase" if all the words of a phrase are a "Twin Word" of any word in another phrase. Write a program to print out sets of "Twin Phrases"
For eg. "Red BBC" and "Dear rad BCC" are twin phrases as every word in phrase 1 has a twin word in phrase 2 and vice versa

Submit your solution in one single file covering all 3 cases. Upload your code in a language of your choice and name the file "peak_java", "peak_python" etc. We want to read through your solution.

Problem 2 - Peak Interaction

The log file contains interaction between users on Toppr in a specific format. We want to find a group of users communicating among each other.

A group is a set of at least three users, where every possible permutation of two users within the group have both received and sent some kind of interaction between the two.

Input specifications:

The input file consists of multiple lines of aggregated log data. Each line starts with a date entry, whose constituent parts are separated by single white spaces. The exact format of the date always follows the examples given below.

Following the date is a single tab, and then the email address of the user who is performing the action. Following that email is another single tab and then finally the email of the Toppr user who receives the action. The last line of the file may or may not have a newline at its end.

```
Thu Oct 18 16:53:04 PST 2019    c@toppr.com    a@toppr.com
Thu Oct 18 16:53:05 PST 2019    b@toppr.com    c@toppr.com
Thu Oct 18 16:53:06 PST 2019    c@toppr.com    b@toppr.com
Thu Oct 18 16:53:07 PST 2019    d@toppr.com    e@toppr.com
Thu Oct 18 16:53:08 PST 2019    e@toppr.com    d@toppr.com
Thu Oct 18 16:53:09 PST 2019    d@toppr.com    f@toppr.com
Thu Oct 18 16:53:10 PST 2019    f@toppr.com    d@toppr.com
Thu Oct 18 16:53:19 PST 2019    e@toppr.com    f@toppr.com
Thu Oct 18 16:53:12 PST 2019    f@toppr.com    e@toppr.com
```

Every line in the input file will follow this format, you are guaranteed that your submission will run against well formed input files.

Output specifications:

You must output all groups detected from the input log file with size of at least 3 members. A group is defined as N >= 3 users on Toppr that have send and received actions between all possible permutations of any two members within the group.

Your program should print to standard out, exactly one group per line. Each group must have its member user emails in alphabetical order, separated by a comma and a single space character each. There must not be a comma (or white space) after the final email in the group; instead print a single new line character at the end of every line. The groups themselves must be printed to standard out also in alphabetical order; treat each group as a whole string for purposes of alphabetical comparisons. Do not sort the groups by size or any other criteria.

Example output (newline at end of line):

```
a@toppr.com, b@toppr.com, c@toppr.com
d@toppr.com, e@toppr.com, f@toppr.com
```

Finally, any group that is a sub-group (in other words, all users within one group are also present in another) must be removed from the output. For this case, your program should only print the largest super-group that includes the other groups. Your program must be fast, efficient, and able to handle extremely large input files.

Upload your logic or code in a language of your choice. Name the file "peak_java", "peak_python" etc. If you couldn't code, explain the logic clearly and explain how you would approach the problem. If your approach is close, we can take care of the rest!

IITG

same questions as IIT(ISM) Dhanbad

Paypal

IITR

Eligibility: JEE All, M.Tech CSE
CGPA Criterion: 7

2 hours , HackerRank , 3 Problems
1.Given array representing parents of each node in the undirected tree such that i the element represents parent[i] and a seperate array denoting value in the nodes.Find longest path sum in the tree.(n <= 10^5, -1000 <= A[i] <= 1000).
2. Interest sharing problem. Find maximal product of nodes in the group sharing maximum number of interests.
3. A shopkeeper has to given serve certain number of requirements of the customer. A customer will be satisfied if he gets at least the amount he ordered. Given m flasks from which only one can be used to measure the quantity and serve the customers. Given order quantity array and different markings of different flask. Find the index flask with which loss of shopkeeper is minimum.
eg : Order - [4 6] , flask 1 = [5 10] , flask2 = [5 7]...Loss1 = 5 - 4 + 10 - 6 = 5 , loss2 = 5 - 4 + 7 - 6 = 2.So flask 2 is best option.
Constraints(n <= 10^5 , m < 10^3 , number of all markings for all flask < 10^4).

Fractal

IIT KGP
https://www.docdroid.net/EsVrFGp/fractal-analytics-iitkgp-10thnov-2019.pdf

IITG
Section 1: 3 Coding Questions in 60 mins. Platform - Hackerrank.
1. https://leetcode.com/problems/consecutive-numbers-sum/ (75 Points)
2. https://www.geeksforgeeks.org/equilibrium-index-of-an-array/ (50 Points)
3. Reverse a DNA sequence and complement it. Ex. Input - ATGC, Output - GCAT(Explanation - reverse ATGC first to make CGTA. Now take complement - replace C by G, T by A and vice-versa to get GCAT)(50 Points)

Section 2: Aptitude Section - 70 MCQs in 75 Minutes. Platform - Mettl.
1. Reasoning Section - General logical reasoning questions like finish image sequence, decode sequence etc.
2. Verbal Section - Correct sentence, Reading comprehension etc.
3. Quant Section - Elementary probability, p/.,ermutation and combination etc.
4. Data Analysis Section - Infer data from tables, bar graphs, pie charts etc. and answer questions.

VMWare

IITK

1. There are two players Wendy and Bob. Given a string of arrangement of white and black pieces(e.g, wwbbbwww), we have to find who wins the game given the following rules:
    a. Wendy goes first
    b. Wendy picks w and Bob picks b
    c. Wendy can pick a white piece only if it has at least one w on both sides. Same rule is for Bob.
    d. After, removing a piece, the other pieces to its left and right are now adjacent.
    e. The person who can't make a move loses

Example:
wwwbbbbwww
Bob wins, first wendy picks a w from left, string is now wwbbbbwww, then Bob picks a b, string is now, wwbbbwww, then wendy picks a w from
right, string is now wwbbbww, then Bob picks a b, string is now, wwbbww, now Wendy can't pick a piece so Bob wins.

Solution: For every block of consecutive w or b, count the number of w or b in that block. If the size of block>=3, number of chances for wendy
or bob += size of block-2. If wendy has more chances, she wins, otherwise Bob wins.

instead of accessing the element in the order they arrived(like in BFS), we have to first sort the next level nodes and then traverse them.

3. You are given n packets. These packets have to be sent from source to destination. Some packets are already sent given by two array of size k. first_array[i] to second_array[i] packets are already sent(The ranges are never overlapping). The remaining packets can be sent only in chunks of sizes of some powers of 2. the packets in a chunk have to be consecutive. Find minimum number of chunks needed.

Example: if n=15, and (2,4), (7,8) and (14,15) are already sent, the answer will be 4. the chunks will be (1,1), (5,6), (9,12), (13,13).

Solution: sort the ranges that are already sent. Then find the block that is not sent. Find the number of chunks of size as some power of 2 this block has to be divided into(simply, the number of ones in the binary representation of the size of block). Do this for every unsent block and add the values for all the blocks.

IITG

90 min, 3ques
Hackerrank

1. You are given a 1D array and an integer n. Assume it as a 2D array with n columns and answer the queries. Queries will be row number and column number.
Eg: array=[1,2,3,4,5,6,7,8,9] n=3
then 2D array will be
1 2 3
4 5 6
7 8 9
if query is {2,2} answer will be 9 and if {1,2} then 6

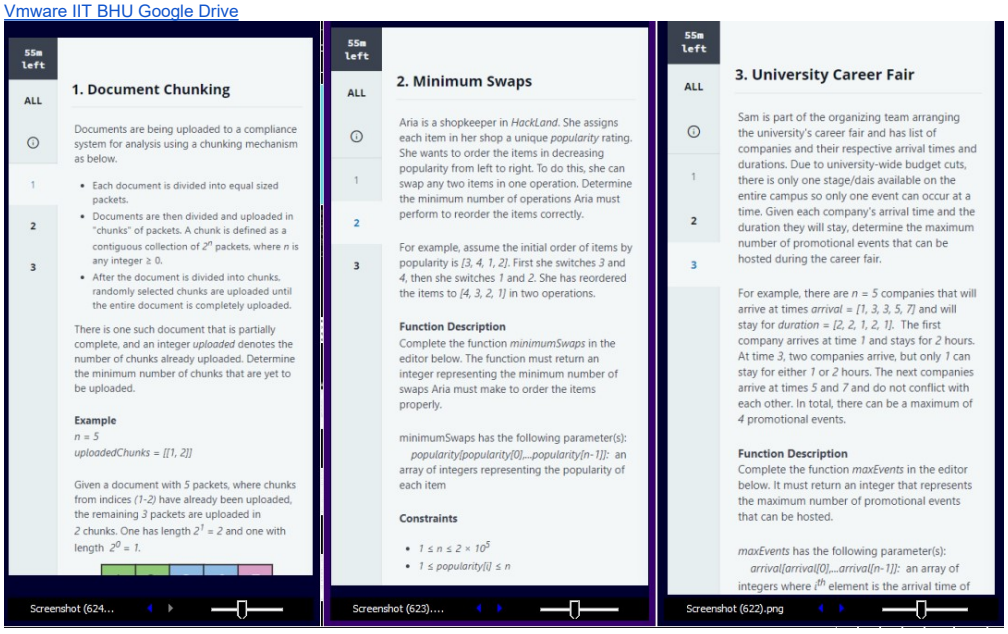
2. Given a string find all substring which are palindrome of if we arrange the letters of substring then it becomes a palindrome.
Eg: Input: bbrrg
output 12
b bb bbr bbrr bbrrg b brr r rr rrg r g Scatter Palindrome

3. Same as IITK Q3.

IIT BHU

Vmware conducted test on Hackerrank | 90m | 3 Coding Problems

Vmware IIT BHU Google Drive



Myntra

jpftUllmfXGYmzM1B8m?usp=sharing

Converted the screenshot posted here to a link: https://imgur.com/a/RLlk3ef

Substring calculator: the above brute force solution only passes 5 test cases.
Use Suffix array to pass all tests

synopsys

IITG

Platform: Mettl
No coding Question, All mcq.
1 hr test.
3 section, logical and quant, coding mcq, Digital logic

Udaan.com

IITG, IITKGP

Same question in IITG too??
Hackerearth
2hr test
Questions

Clear Tax

IITG

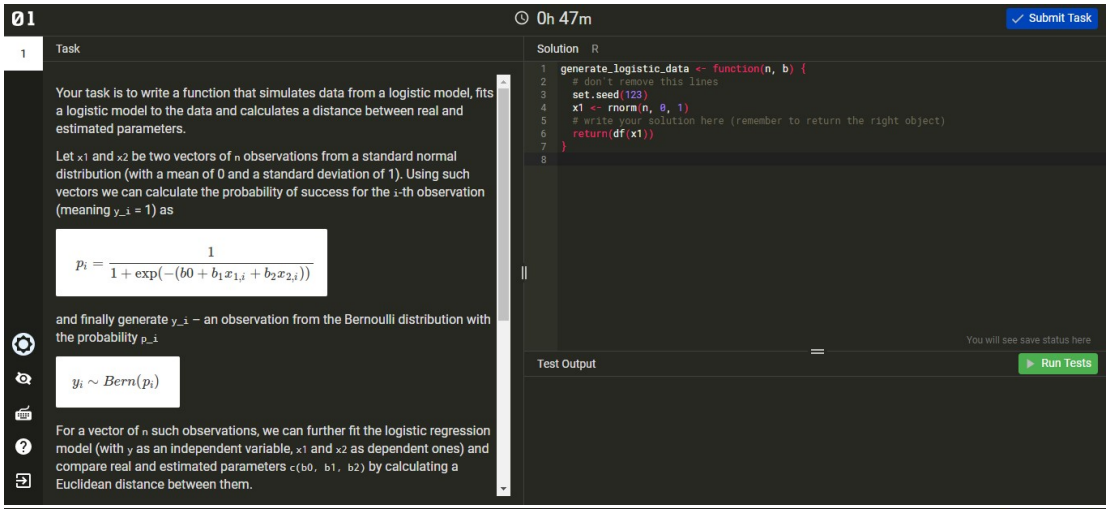
One of the worst tests in the whole placement season. Their platform sucks.
Used Mettl platform with MSB(Mettl secure browser). It took 15 min to just start the test.
Test is only supported in Windows 7 and above.
Test will not run on Linux or mac
You need to uninstall skype from system else the test don't start.

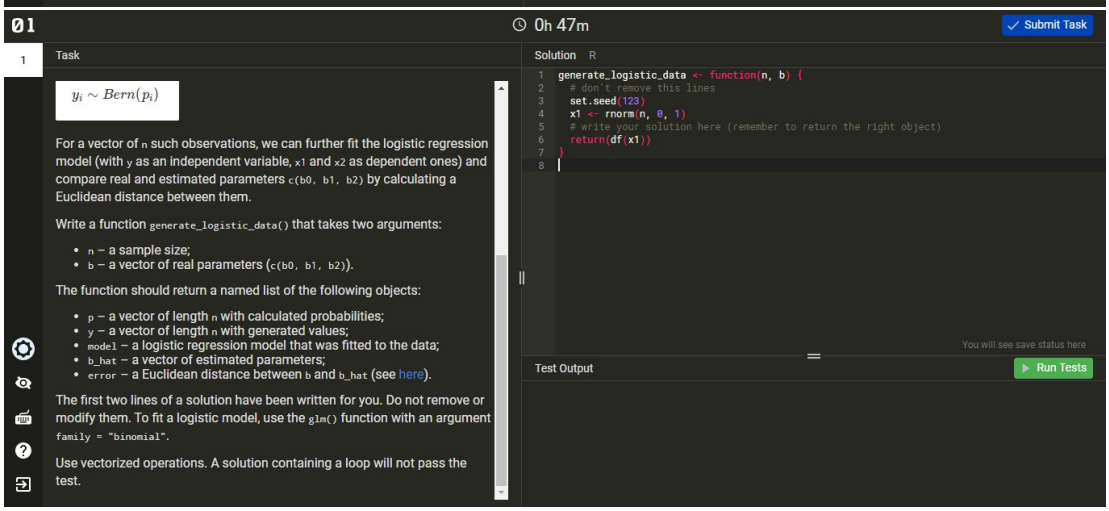
It's a 2hr test with 10 mcq and 2 coding.
Mcqs were on data structure red black tree, stack, queue, javascript

Coding:
Q1. once shyam invited ram to his home. instead of giving him the exact address, he gives the following hint:
From the top of my house, I can see a;; the other houses without turning my head.
(Assume that shyam has a field of view of 180 degrees. i.e. if he faces north he can see from north to east and north to west.
If house 1 has coordinates (x1,y1) nd house 2 house coordinates then dist b/w them is sqrt($(x2-x1)^2$ + $(y2-y1)^2$)
Ram asks shyam the minimum the minimum path he had to walk to check all those houses that could be of shyam.

Q2. In order and post order is given and level l1 and l2 given. construct the tree and print level order traversal from level l1 to l2 boh inclusive.

SOU Japan





Dream11

IIT BHU

Dream11 conducted test on Hackerrank | 3 coding problems | 90 minutes
Were you guys allowed to give the test from hostel rooms??? Asking because it was allowed in IITD...plz reply fast

Set 2 :

1. Paths to a Goal
Given a string made of characters ‘l’ and ‘r’ you need to find out the no. of distinct subsequences of that string which will lead you to position ‘y’ from position ‘x’ on the number line of ‘n’ length, if ‘l’ moves you back and ‘r’ moves you front.
Refer SAP Labs for this question(Solution?)

2. Caesar Edit Distance
Modified version of the standard Edit Distance Problem. Given a source string and a target string, you can shift the source as many times as you want on the character-line (in one shift you can turn ‘yzab’ to ‘abcd’). You need to find the edit distance between the source after any no. of shifts and the target if only ‘insert’ and ‘delete’ operations are allowed.
Solution anyone????? Plzzzz
bhaiyon batado koi...test hai…..BHU guys……help??
yes, test very soon
yaha bhi kisi se nahi hua bhai
dekh lo yar

3. Fun with Vowels(we had to return Length or String?)
Given a string consisting of only vowels, find the longest subsequence in the given string such that it

Veritas

IITG

platform????
What type of MCQ were asked, pseudo code or aptitude ??
1 hour, 20 MCQ, 2 coding
Coding:

1. https://www.geeksforgeeks.org/smallest-window-contains-characters-string/
2. https://www.programcreek.com/2014/05/leetcode-paint-house-java/

Ericsson

Profile: Graduate Trainee
45 min exam on CoCubes
Only MCQs on Quantitative, Logical and verbal.
Easy test.

Honda Japan

IIT Delhi, Open for all branches

3 coding questions.

1. Traversal of BST,
2. finding the 4th digit in binary representation of the given number,
3. printing things when a number is a multiple of 3 or 5 or both.

MCQs based on regression, ML, easy probability.

1. Read sampling and confidence intervals and regression as some questions were asked from it. Also questions based on z-table were asked.
2. A question on central limit theorem, one on finding pdf of exp(aY+b) if Y is normally distributed.
3. Other quant questions on Bayes Theorem and JEE level probability and P&C. eg. 6 black chairs and 4 red chairs, three customers bought a chair. Probability that there were two or more than 2 black chairs out of them. 4 rotten apples and 11 normal apples in a bag. We take out them one by one without replacement, probability that 9th apple is the last rotten apple.
4. Read about Variance, Bias, Cross Validation and Type 1 &2 errors.
5. What happens to Confidence Intervals when Outliers are introduced? It increases.
6. Which of the following are sensitive to Outliers. Options were 1)mean 2)median 3) mode 4) sd
7. range(1000-9999), find numbers divisible by 11W that are not palindromes. Ans 729